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Technical Note

1976-37

Supp. 1

Microprocessor Realization
of a Linear Predictive Vocoder

E. M. Hofstetter
J. Tierney
O. C. Wheeler

Appendix C:
LPCM Detail Drawings and Layouts

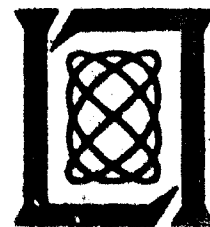
7 February 1977

Prepared for the Defense Communications Agency
under Electronic Systems Division Contract F19628-76-C-0002 by

Lincoln Laboratory

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

LEXINGTON, MASSACHUSETTS



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This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER

Frederick S. D'Amico

Barth L. Lohpelt, Lt. Col., USAF
Chief, F.D. Lincoln Laboratory Project Office

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
LINCOLN LABORATORY

MICROPROCESSOR REALIZATION
OF A LINEAR PREDICTIVE VOCODER

APPENDIX C:
LPCM DETAIL DRAWINGS AND LAYOUTS

E. M. HOFSTETTER
J. TIERNEY
O. C. WHEELER

Group 24

TECHNICAL NOTE 1976-37
SUPPLEMENT 1

7 FEBRUARY 1977

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APPENDIX C: LPCM Detail Drawings and Layouts

This appendix to Lincoln Laboratory Technical Note 1976-37 provides all of the detailed drawings, layouts and cabling information to construct an identical vocoder to the one described in the technical note. The following additional comments may clear up any additional questions concerning this appendix.

Digital Logic Drawings

The five digital logic drawings completely represent the digital logic on the two LPCM Augat boards. Drawings 1, 2, 3 represent logic on board I, and drawings 4, 5 logic on board II. Interconnections from board to board and from boards to chassis are described in the cable lists. Drawing #1 represents the data memory complex and the four 2901 C.P.U. complex, physically located on the left hand portion (looking down from the front) of board I. Packages on this drawing as well as the other four logic drawings are designated by the location of pin #1 of the package on the layout. For example the most significant 2901 is marked CA1 on the drawing. This tag means the package is placed on board I such that pin 1 (in this case of a 40 pin package) is located in section C, column A, pin 1. The digital package layout drawing for board I also shows the position of this 2901 labelled CA1. When a package contains more than one section such that it is scattered around the drawing, the package number is used to tag each section and then identified on the drawing. For example memory address drivers labelled "5" in the center of

1

647

Accession is	
NIS	2901
BSC	801
UNRECORDED	
JUSTIFICATION	
BT	
DISTRIBUTION	
DATE	
BY	
FILED	
SECTION	
A	23
	5

drawing #1 are listed in the table on the drawing as part of a 7404 element located with pin #1 at section A, column E, pin 35 (AE35). Drawing #2 represents timing, branch and interrupt logic placed roughly in the center of board I. Drawing #3 represents the three 2909 microsequencer complex and the 1K x 48 bit ROM located on the right side of board I. Drawings 4, 5 describe logic on board II. Drawing #4 shows the multiplier complex consisting of the eight 25S05 elements which form the quarter array and the peripheral registers. Drawing #5 shows the in-out channels as well as the multiplexer gates which steer the inputs (including upper and lower products) to board I.

Audio Drawing

The audio drawing shows all analog processing on line and microphone input. The Epitek boxes are active 2nd order filter sections used to form the eighth order elliptic filters used for pre and post sampling filtering. After the input filter, a last section provides speech pre-emphasis which can be removed by switching. This output drives the sample and hold circuit on board II. The digital-analog output drives an attenuator to prevent filter saturation and then drives the output filter followed by a switchable de-emphasis network with position #1 the normal matched de-emphasis. The other positions are provided for individual preference. The final audio output drives a line output and an adjustable earphone level into the handset.

Wire List

The wire list gives all the pin-to-pin connections required for boards I and II. Column 1 indicates either a single connection (1) or a daisy-chain (2). Column 2 gives a symbolic name associated with the

connection. For example, the entry

2 UPØ BB15 CCØ6 CB26

means that a connection called "UPØ" runs from pin BB15 to pin CCØ6 to pin CB26.

Twisted pair connections running from the central board to an edge connector are indicated by an * in column 1. The ground connections for these runs are not always indicated explicitly, it being understood that the nearest convenient ground pin and the mating edge connector pin are to be used.

Listing of LPCM Code

The first part of the listing gives the code to go in the LPCM program memory. Each line of mnemonics in this listing translates into the three 16-bit words appearing as the central column of figures on the left-hand side of the listing. The leftmost column of figures should be ignored but the rightmost column of figures gives the location of this particular 48-bit instruction in the LPCM program memory. The mnemonics are explained in Appendix A of Technical Note 1976-37.

The second part of the listing, which is preceded by the mnemonic

MP	Ø
RAM	Ø,

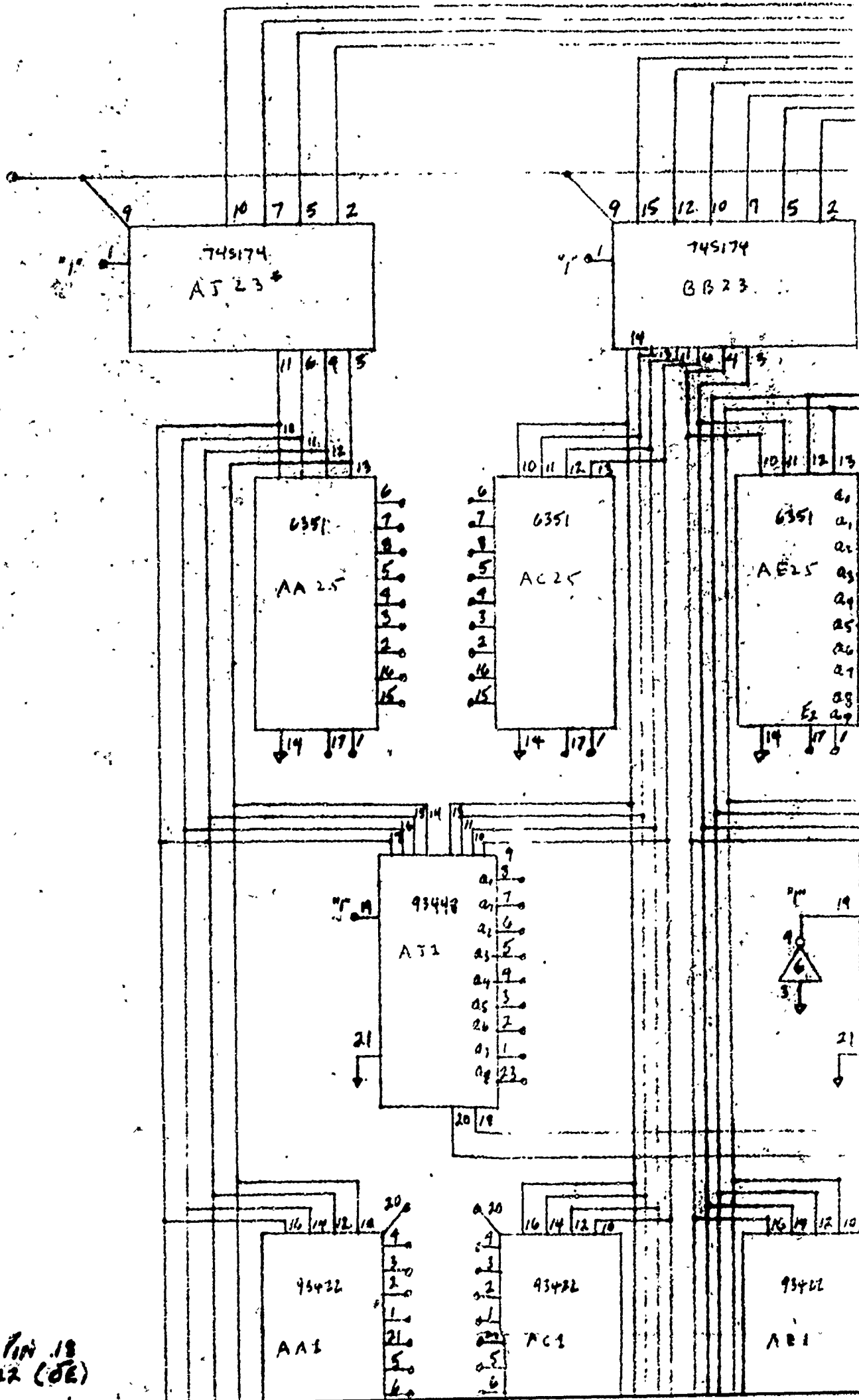
gives the symbolic address assignments used in the LPCM random access memory.

The third part of the listing, which is preceded by the mnemonic

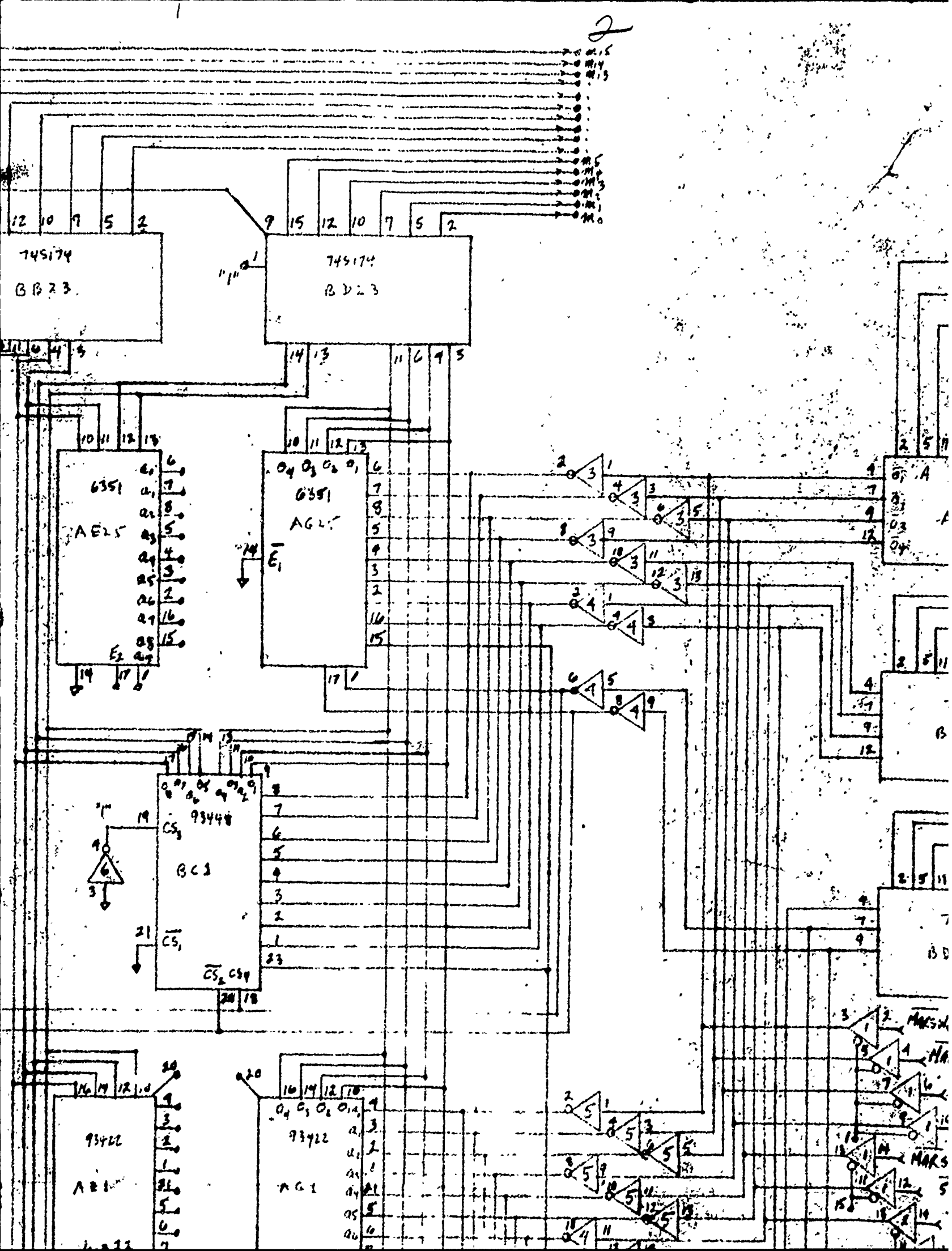
MP	512
ROM	Ø,

gives the data to go in the LPCM read-only data memory. The second column of figures gives the octal data and the third column of figures gives the data memory address at which this data is to appear.

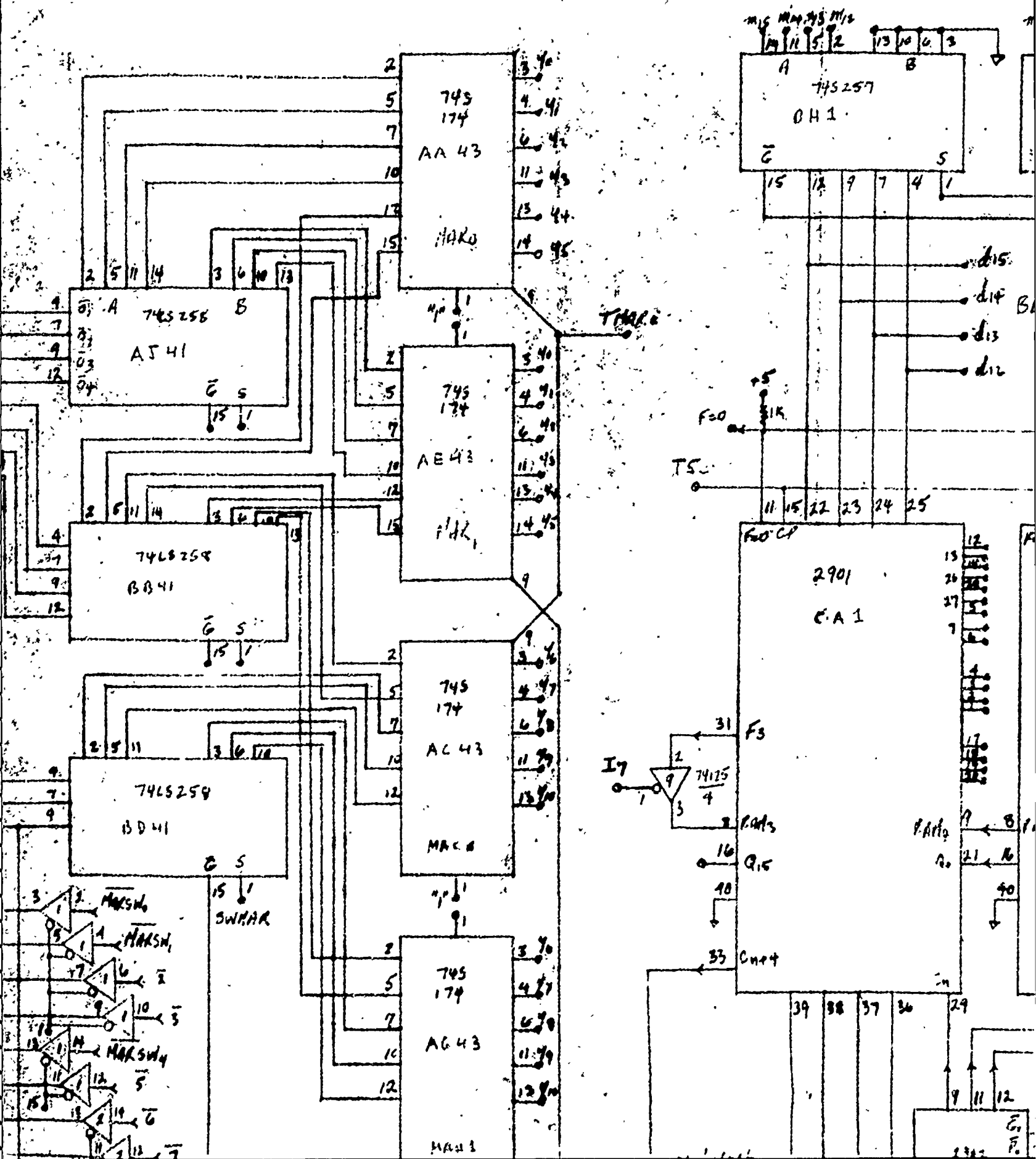
T4



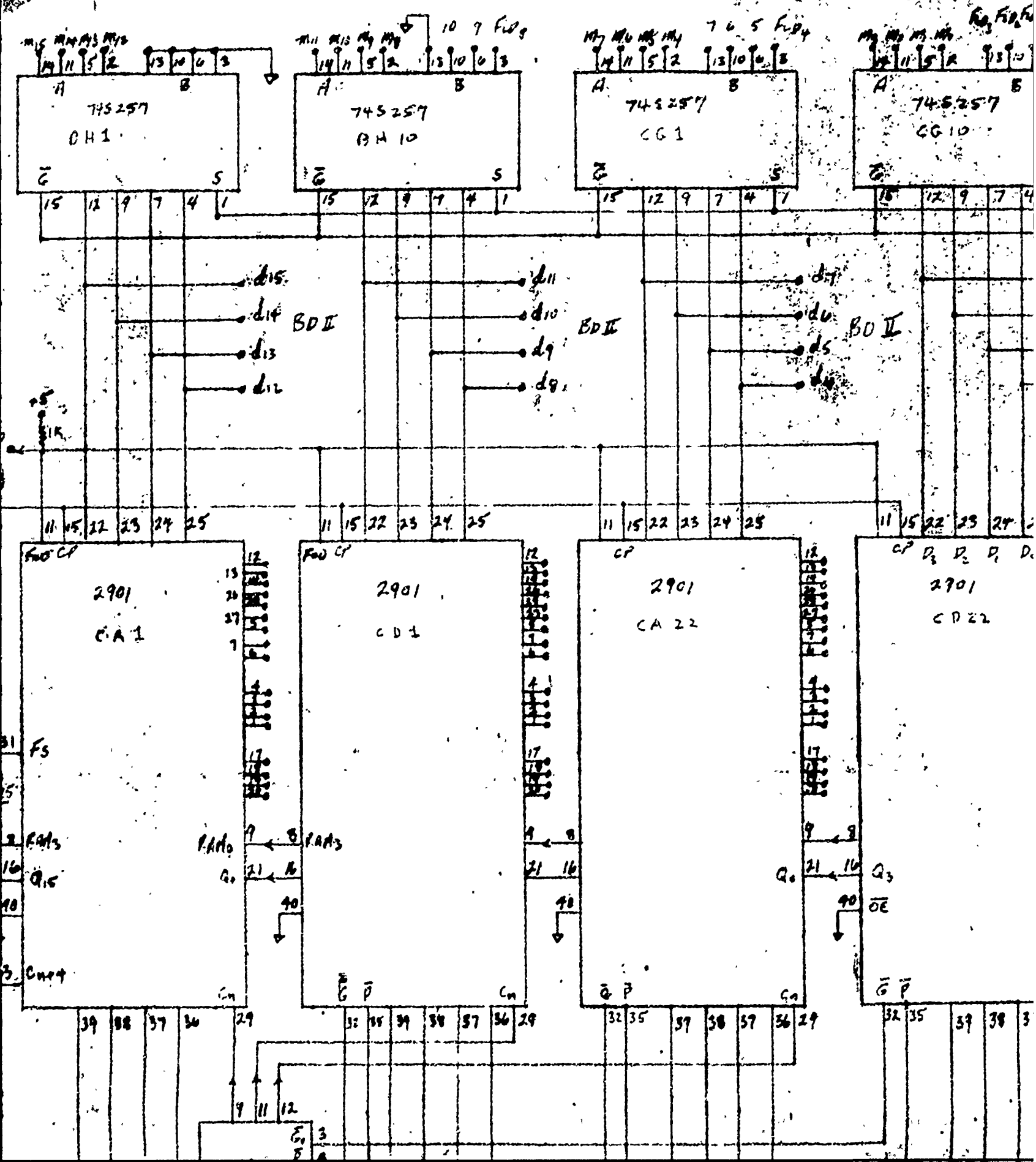
NOTE: GROUND PIN 18 ON 93422 (OE)



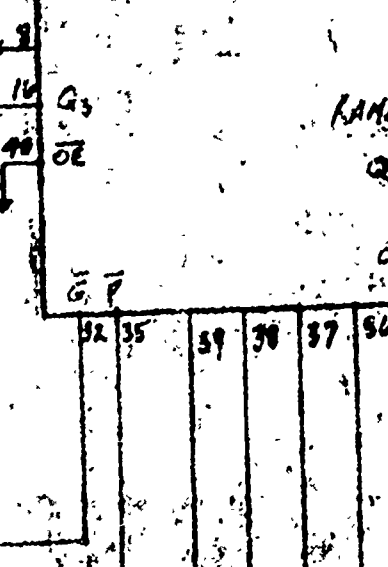
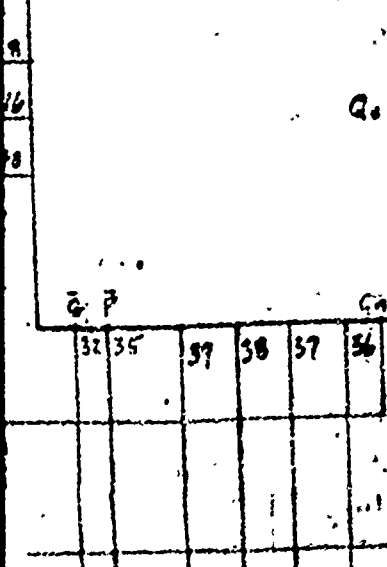
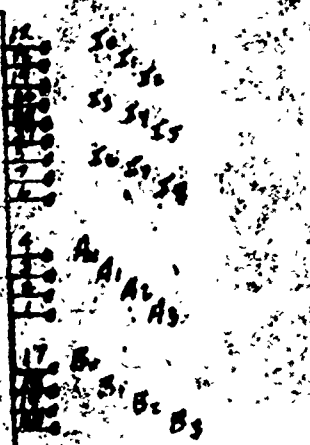
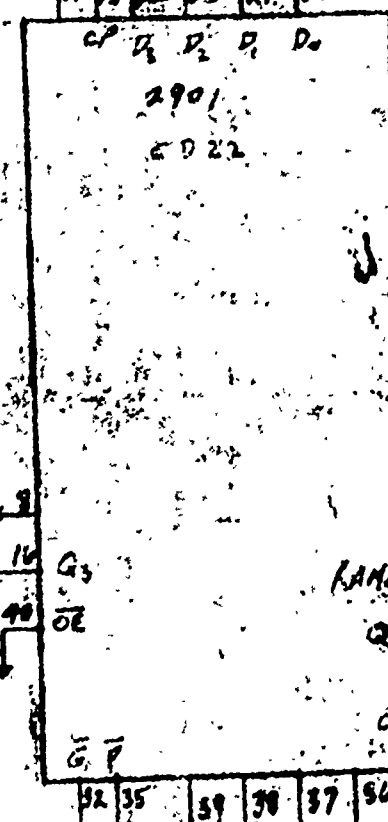
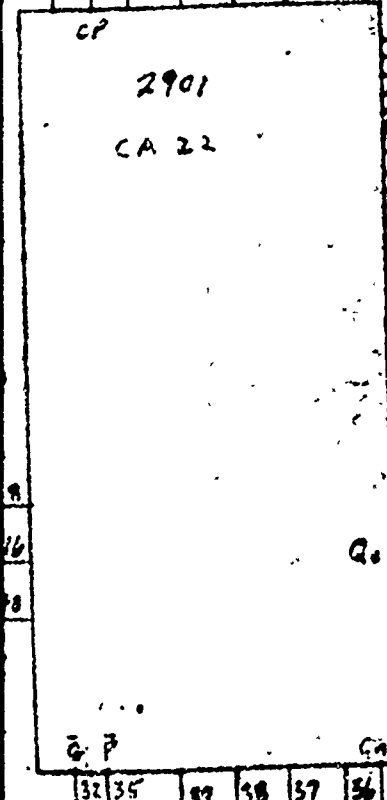
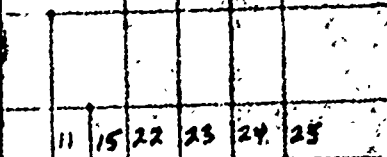
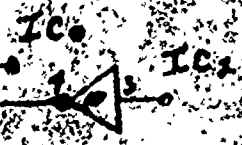
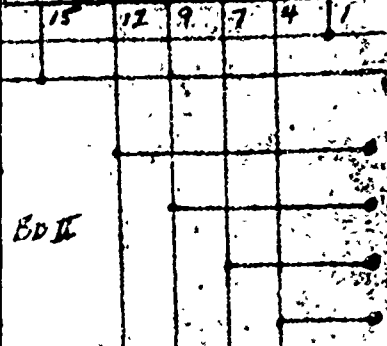
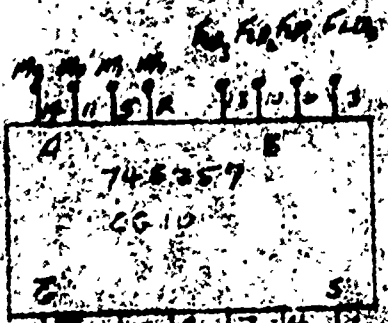
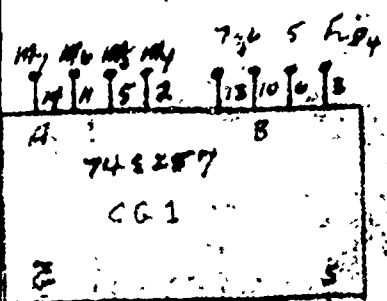
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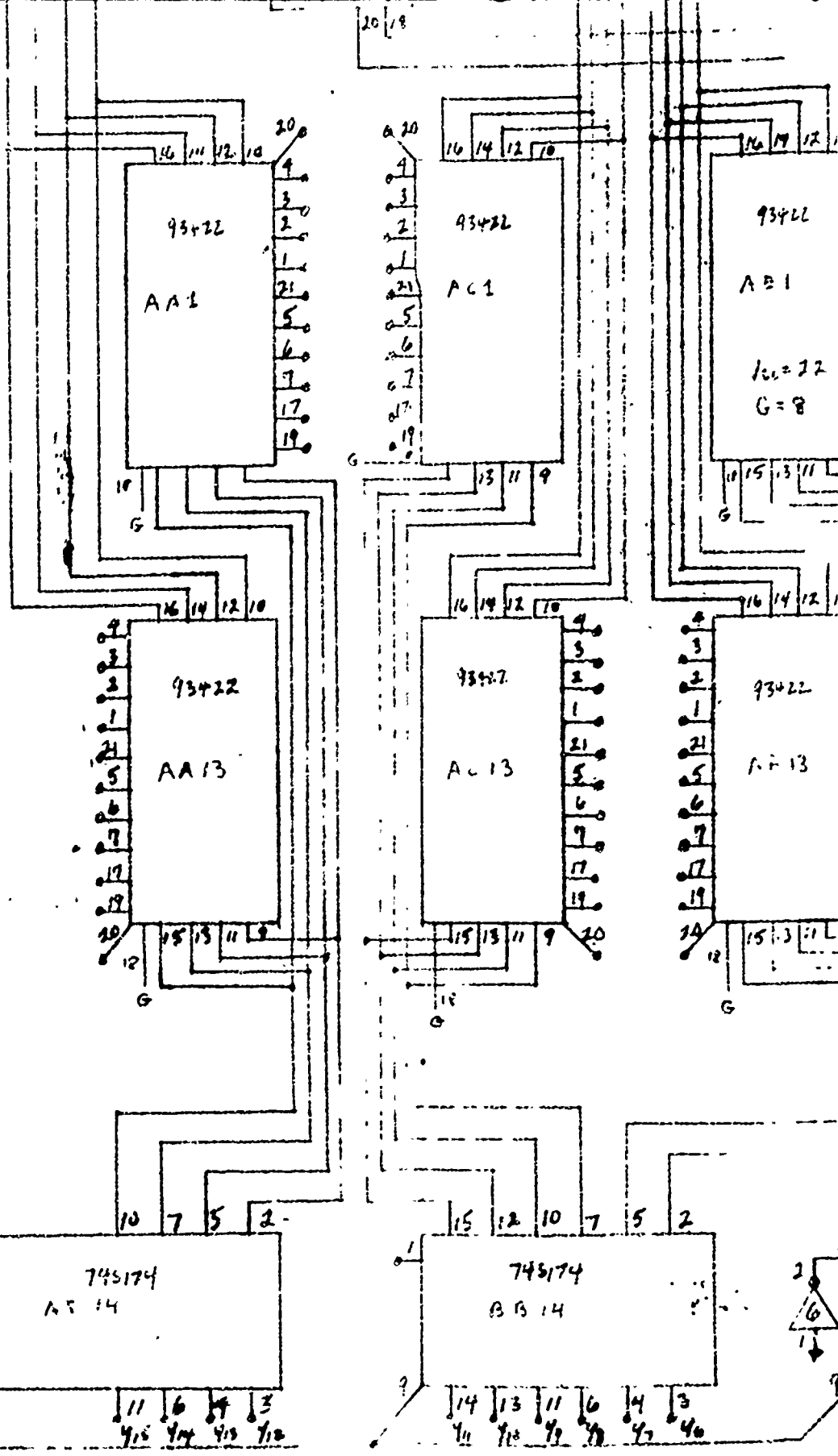
NOTE: GROUND PIN 18
ON 93422 (OE)

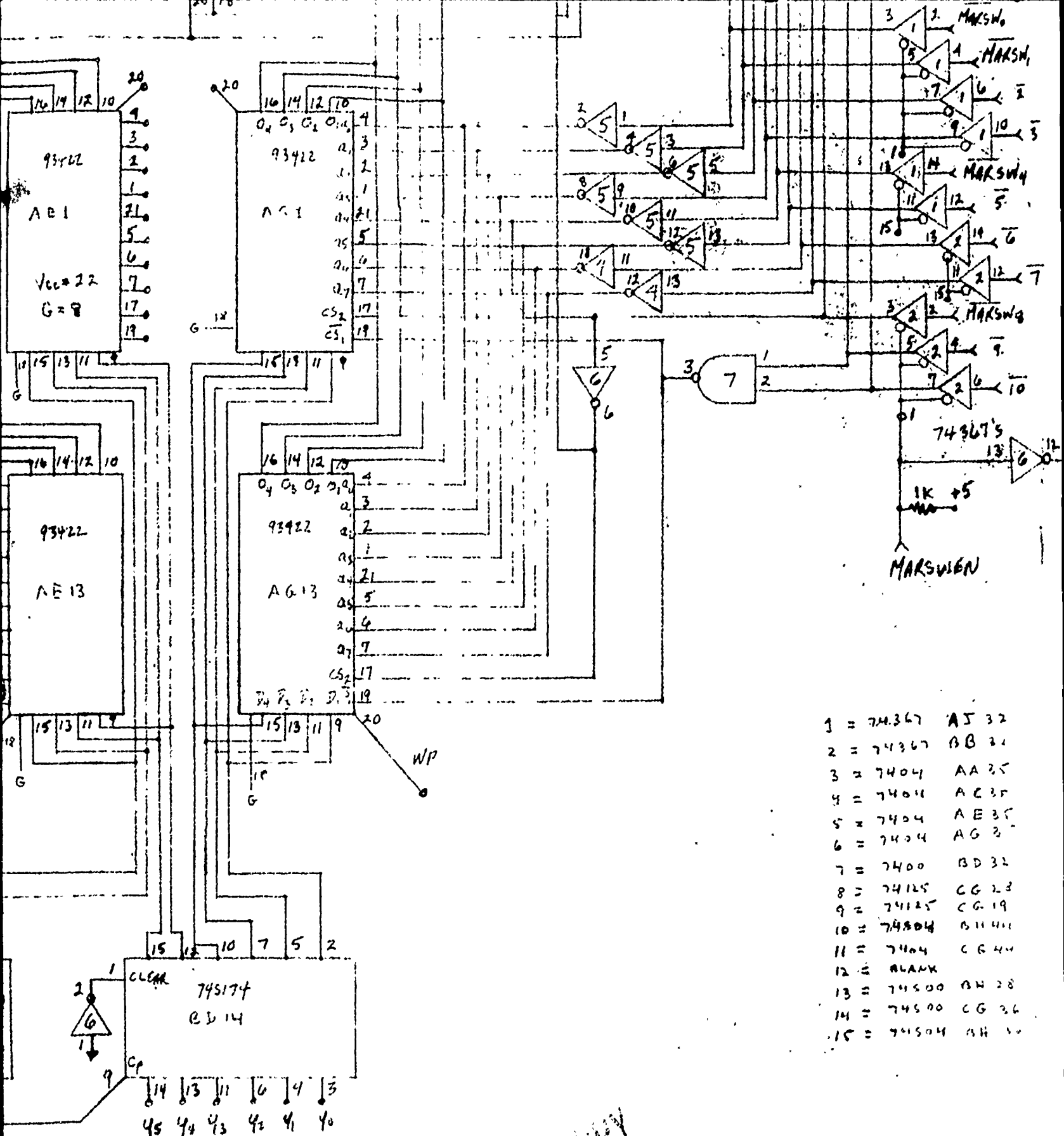
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RAM

HIGH ORDER
RAM

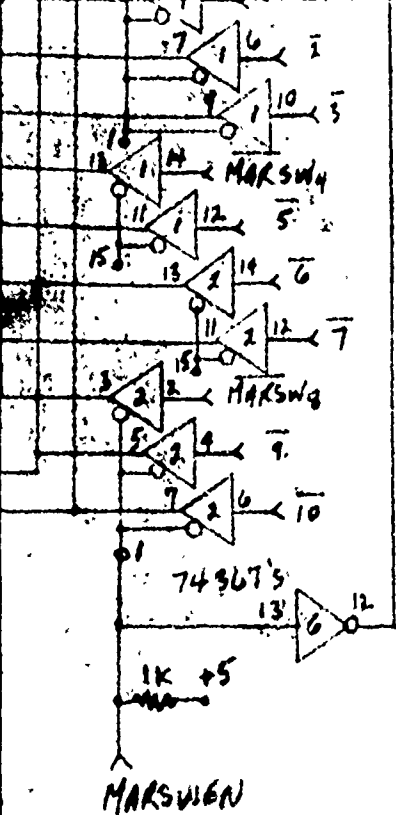
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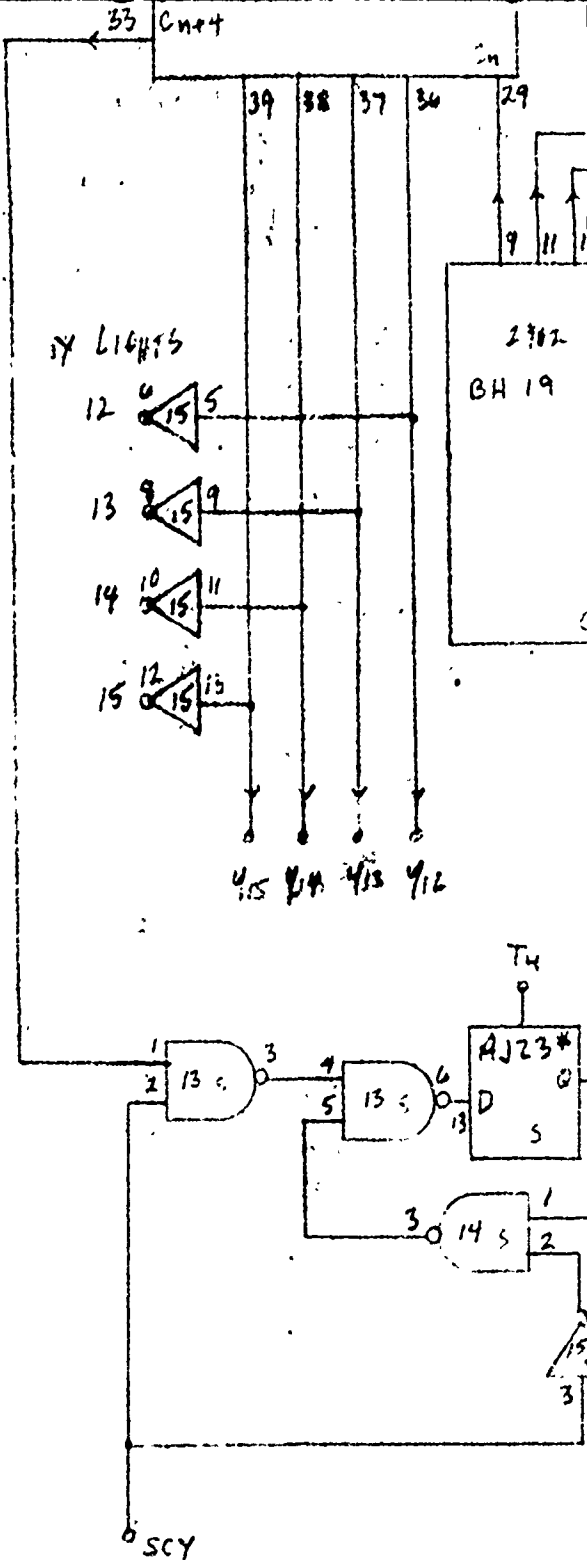
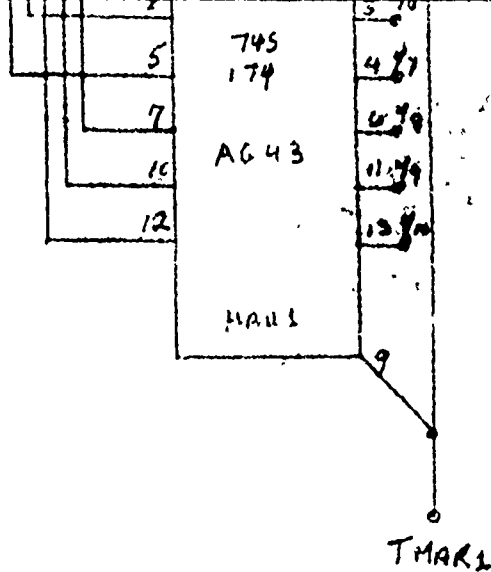


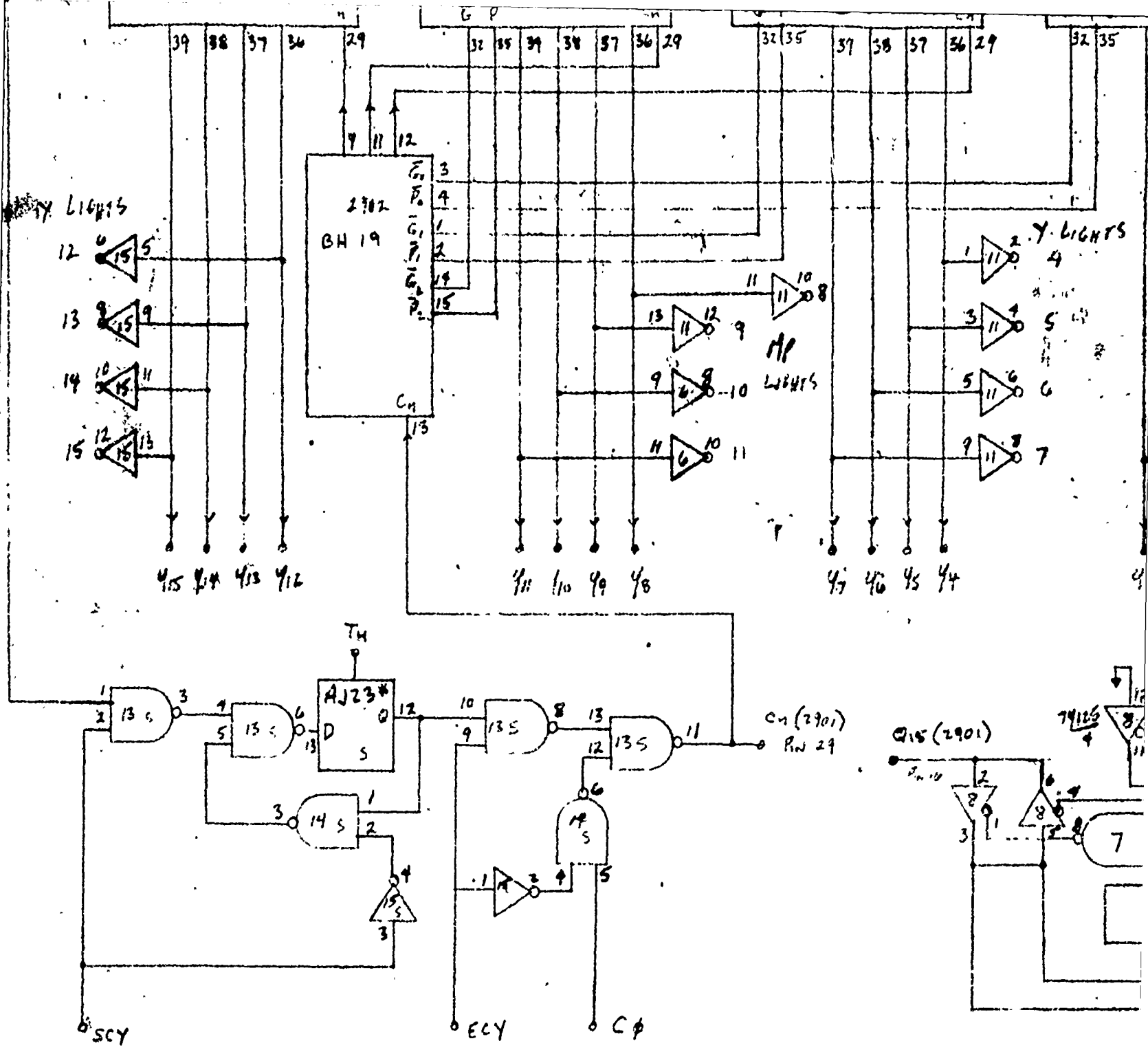


- | | |
|------------|-------|
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| 2 = 74367 | AB 31 |
| 3 = 7404 | AA 35 |
| 4 = 7404 | AC 35 |
| 5 = 7404 | AE 35 |
| 6 = 7404 | AG 35 |
| 7 = 7400 | BD 32 |
| 8 = 74125 | CG 23 |
| 9 = 74125 | CG 19 |
| 10 = 74304 | CH 41 |
| 11 = 7404 | CG 44 |
| 12 = 7404 | CH 28 |
| 13 = 74500 | CG 26 |
| 14 = 74500 | CH 28 |
| 15 = 74504 | CH 28 |

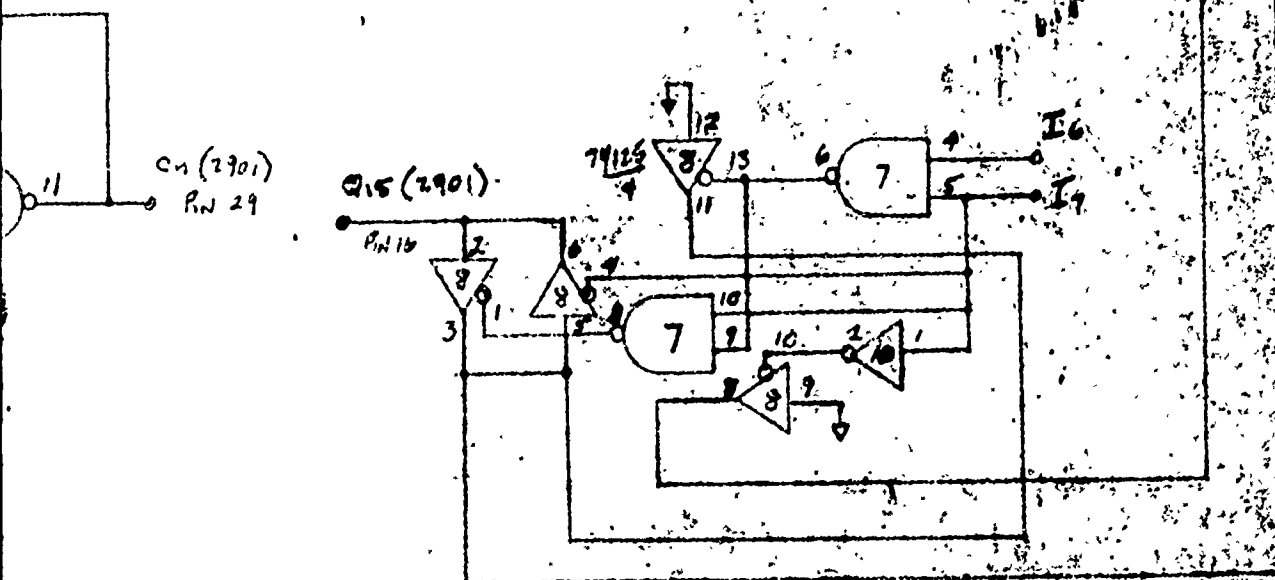
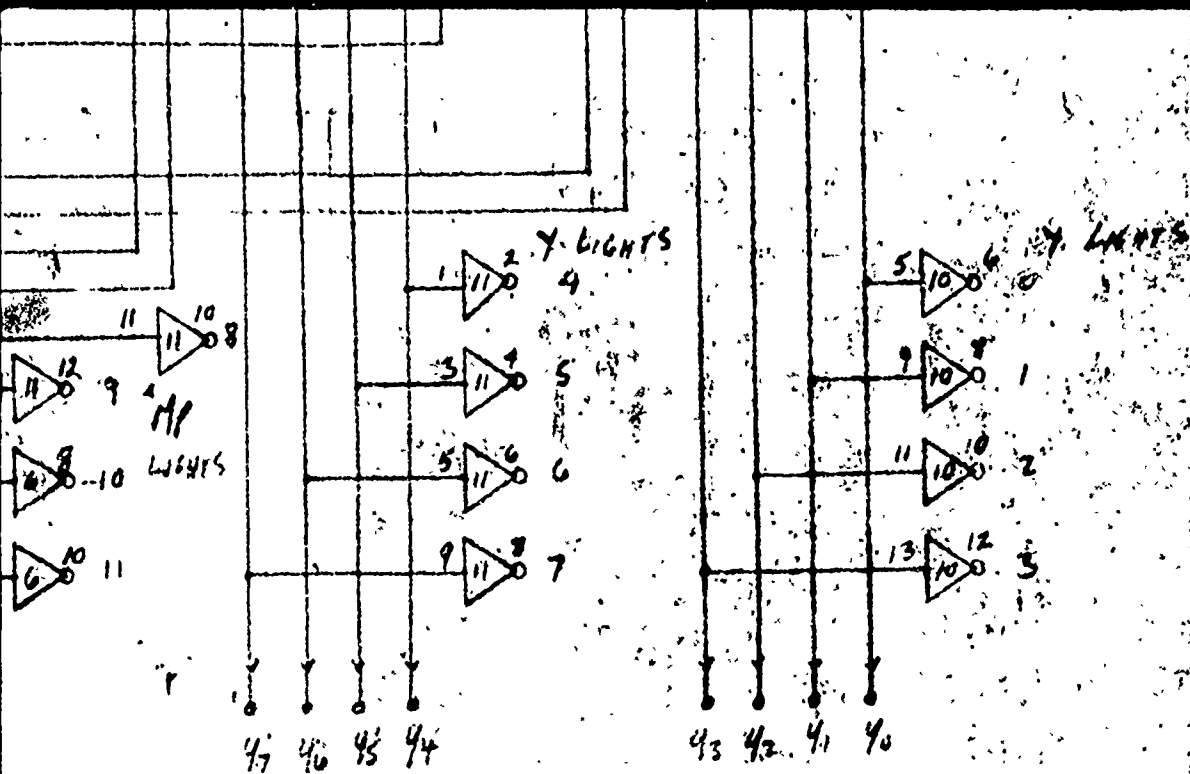


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- 2 = 74367 AB 32
- 3 = 7404 AA 35
- 4 = 7404 AC 35
- 5 = 7404 AE 35
- 6 = 7404 AG 35
- 7 = 7400 BD 32
- 8 = 74125 CG 28
- 9 = 74125 CG 19
- 10 = 74304 BH 44
- 11 = 7404 CG 44
- 12 = 7404
- 13 = 74500 BH 28
- 14 = 74500 CG 26
- 15 = 74504 BH 10





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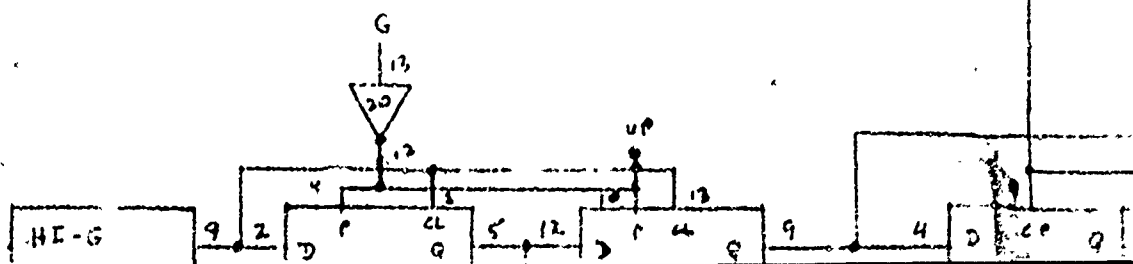
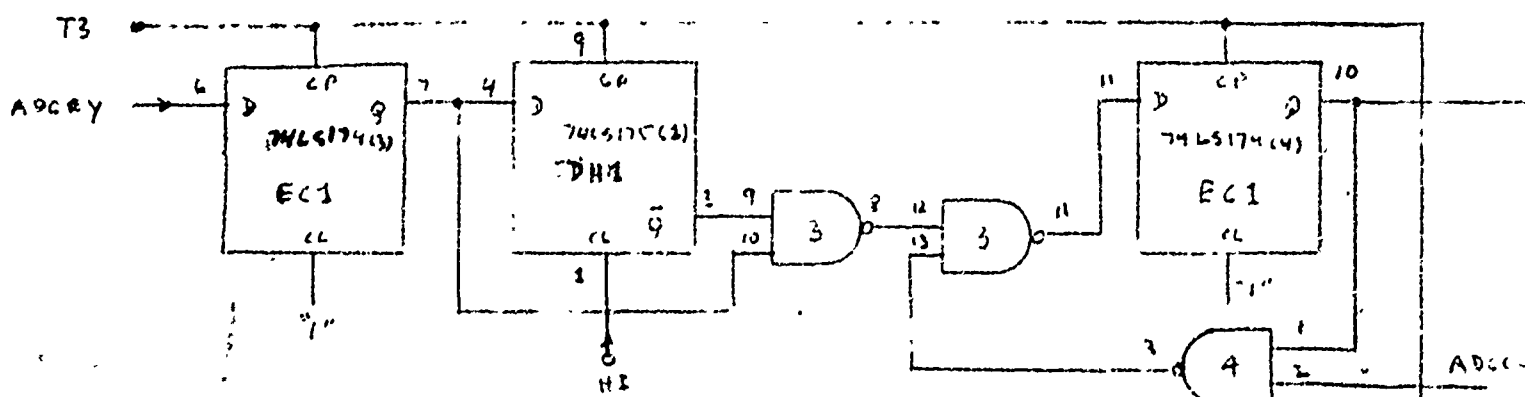
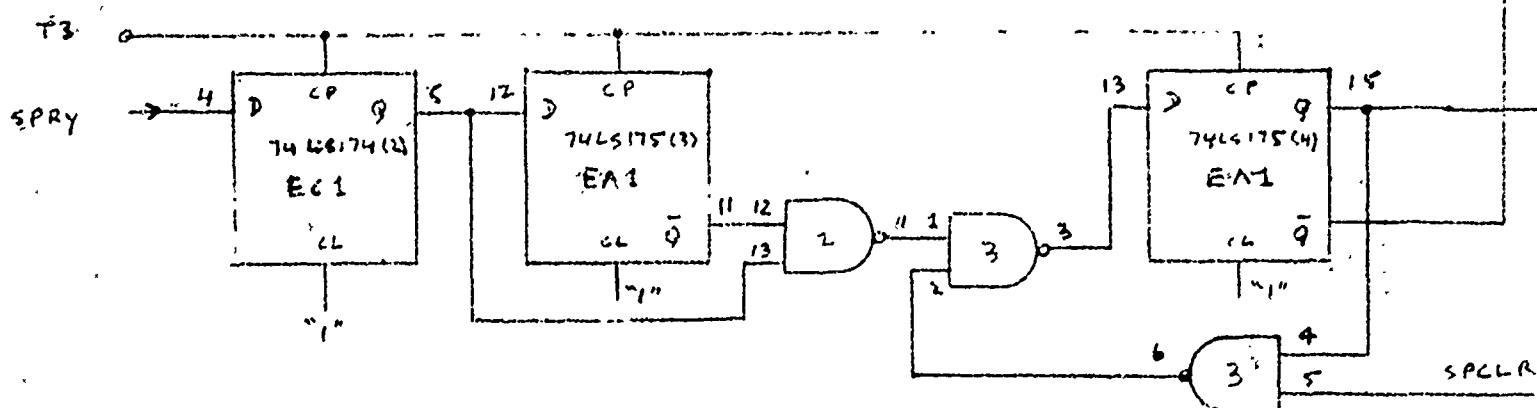
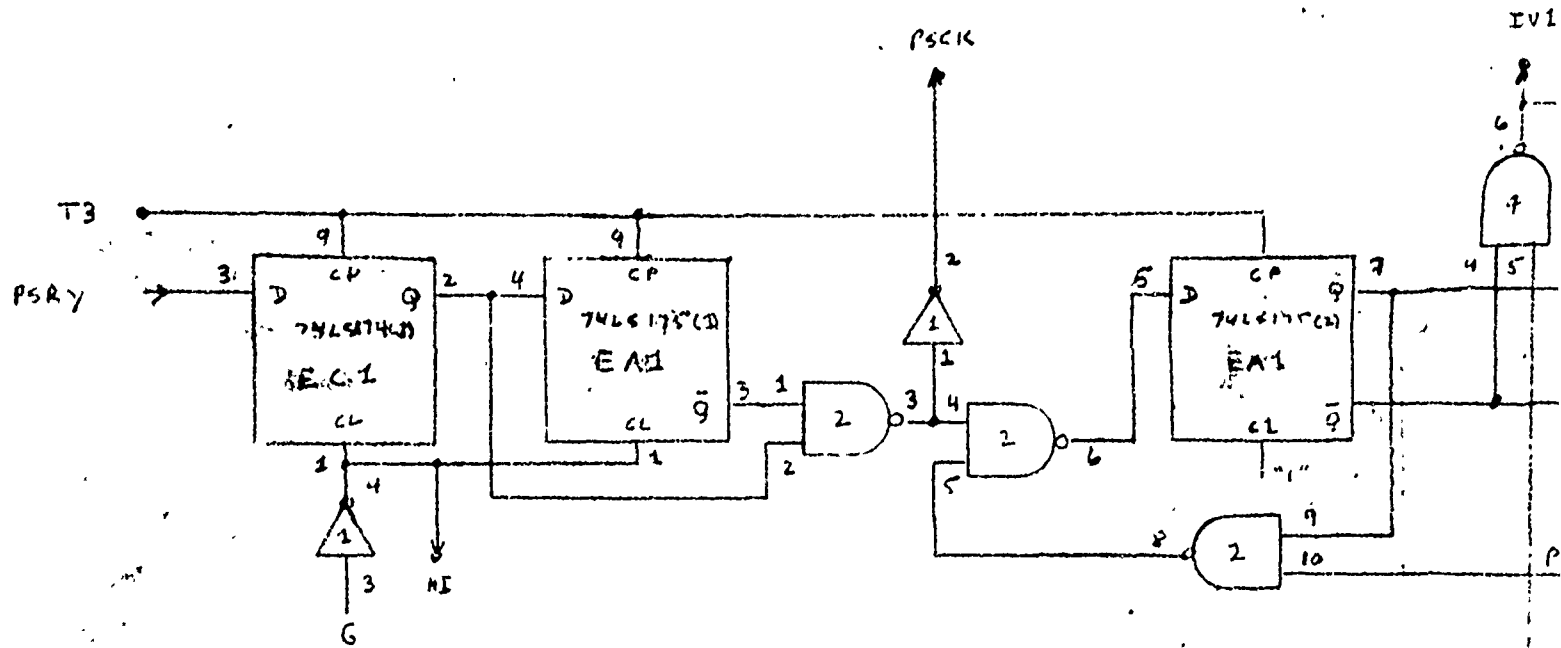
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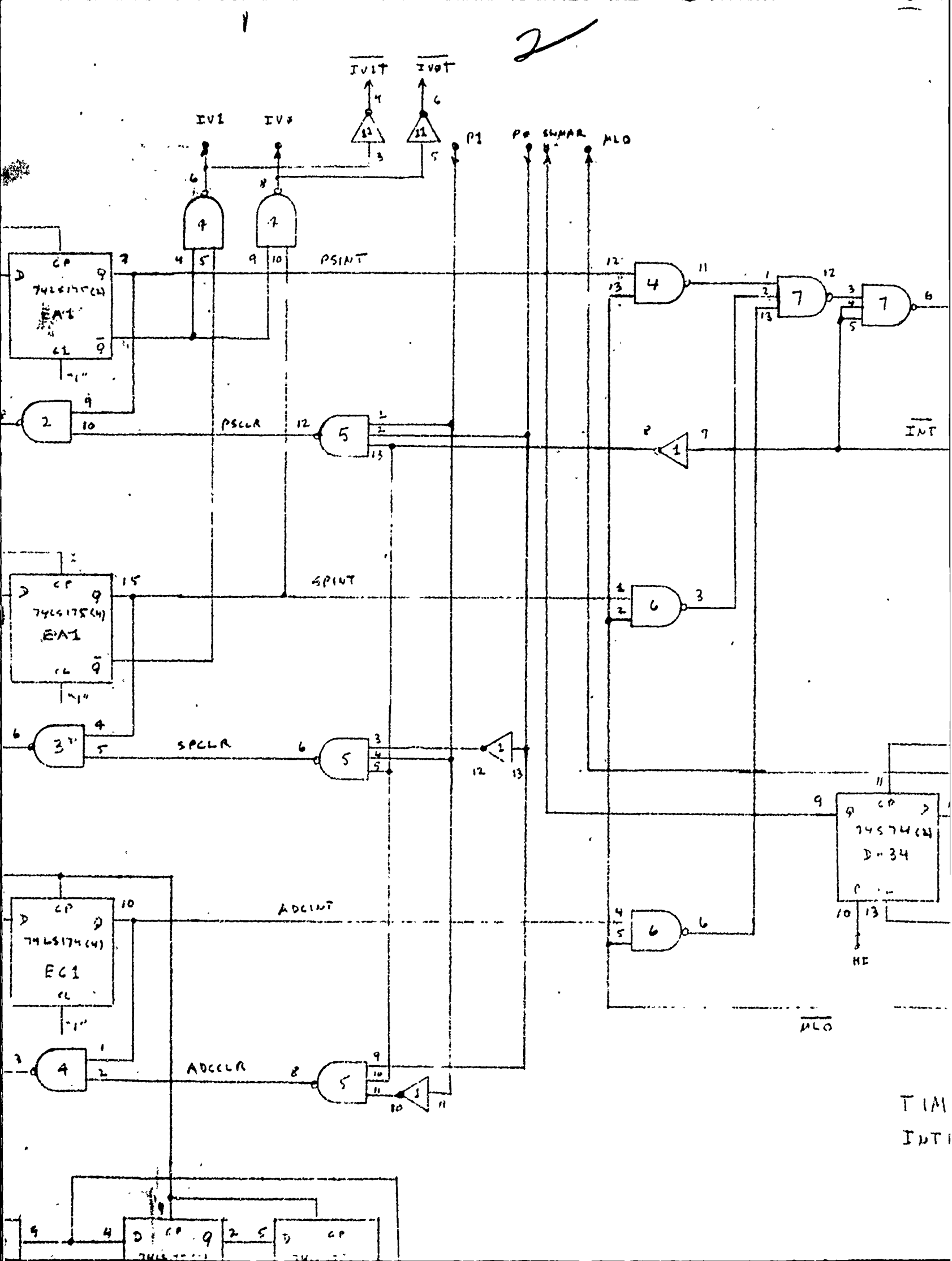
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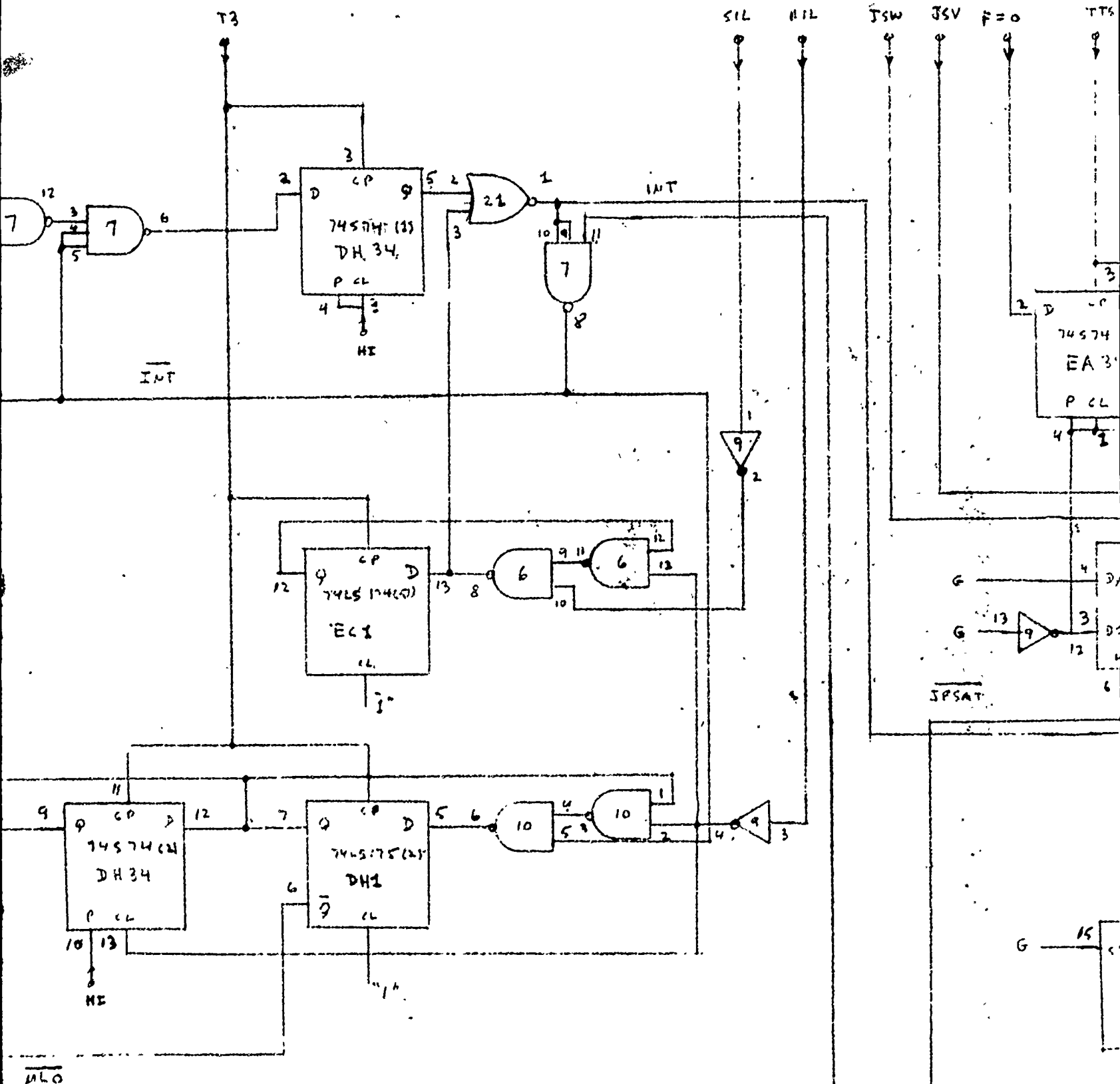
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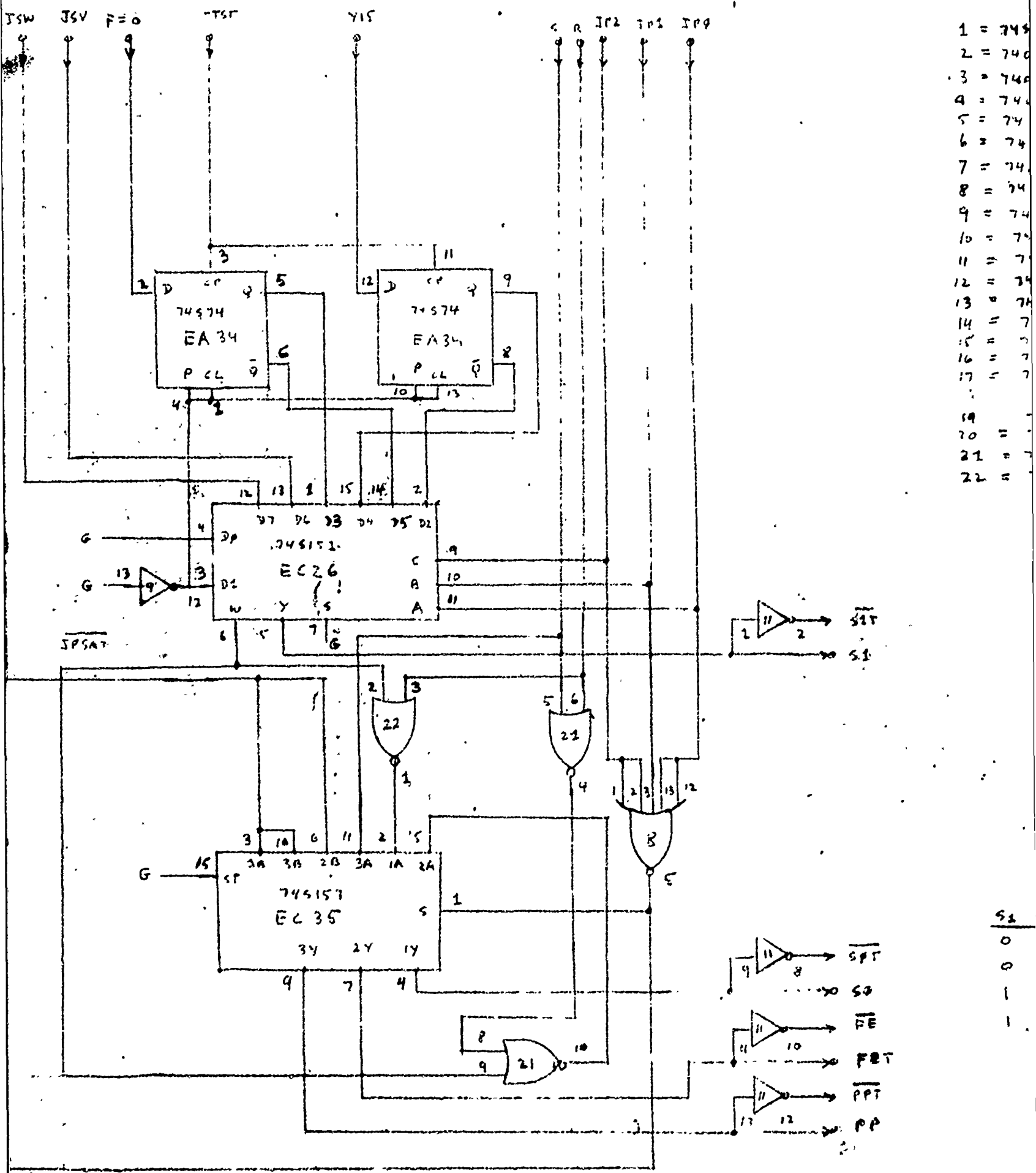
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INT

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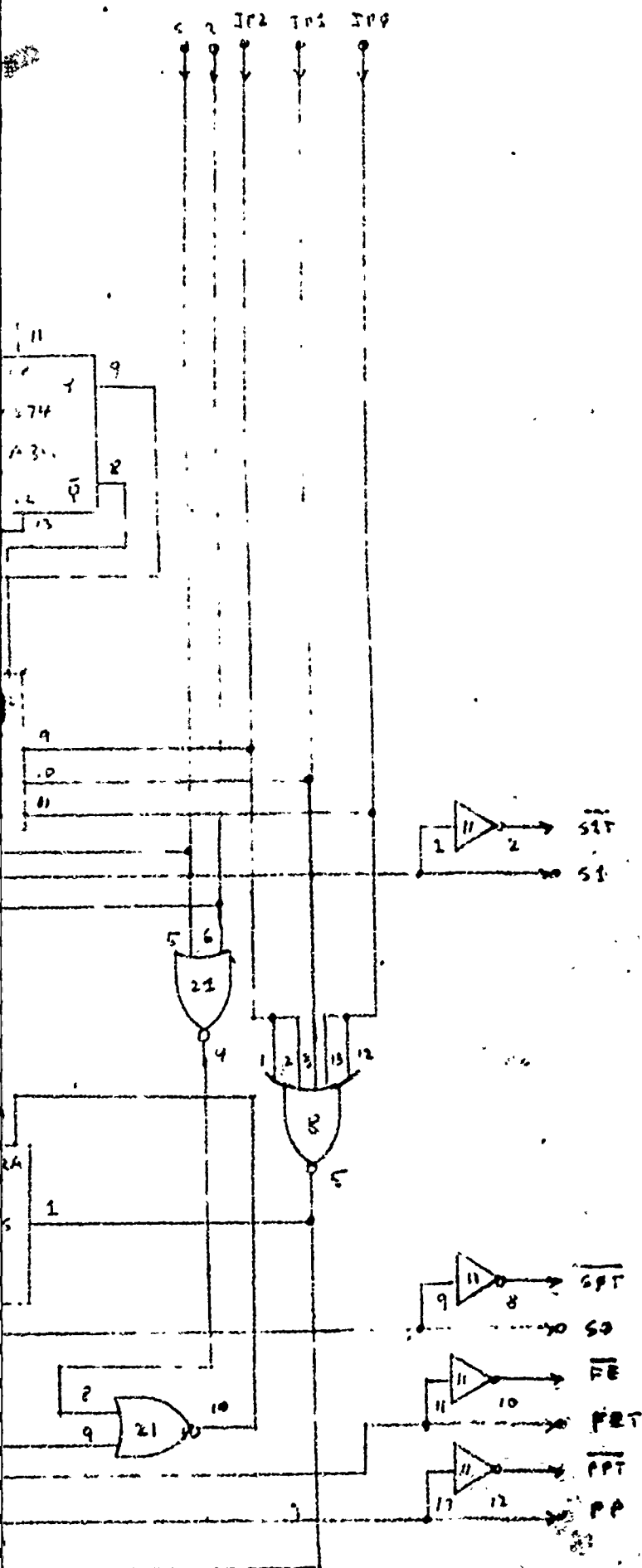


TIMING, BRANCH AND
INTERRUPT LOGIC 2/3/76

4.



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- 1 = 74504 EC 18 41
- 2 = 7400 EC 31 10
- 3 = 7400 EA 10
- 4 = 7400 DH 10
- 5 = 7410 EA 18
- 6 = 7400 EA 26
- 7 = 7410 DH 18
- 8 = 745260 DH 42
- 9 = 74504 EC 44
- 10 = 7400 DH 26
- 11 = 74504 EA 37
- 12 = 7400 CS 10
- 13 = 74532 DS 10
- 14 = 74502 CS 22
- 15 = 74502 FT 35
- 16 = 74502 DA 27
- 17 = 74502 DB 24
- 18 = 745260 DS 42
- 19 = 7400 DS 18
- 20 = 74502 EA 42
- 21 = 74502 DP 43
- 22 = 74502 DP 43

S1	S2	
0	0	PC
0	1	IR
1	0	FILE
1	1	SR



6

ABCLN

8

9

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10

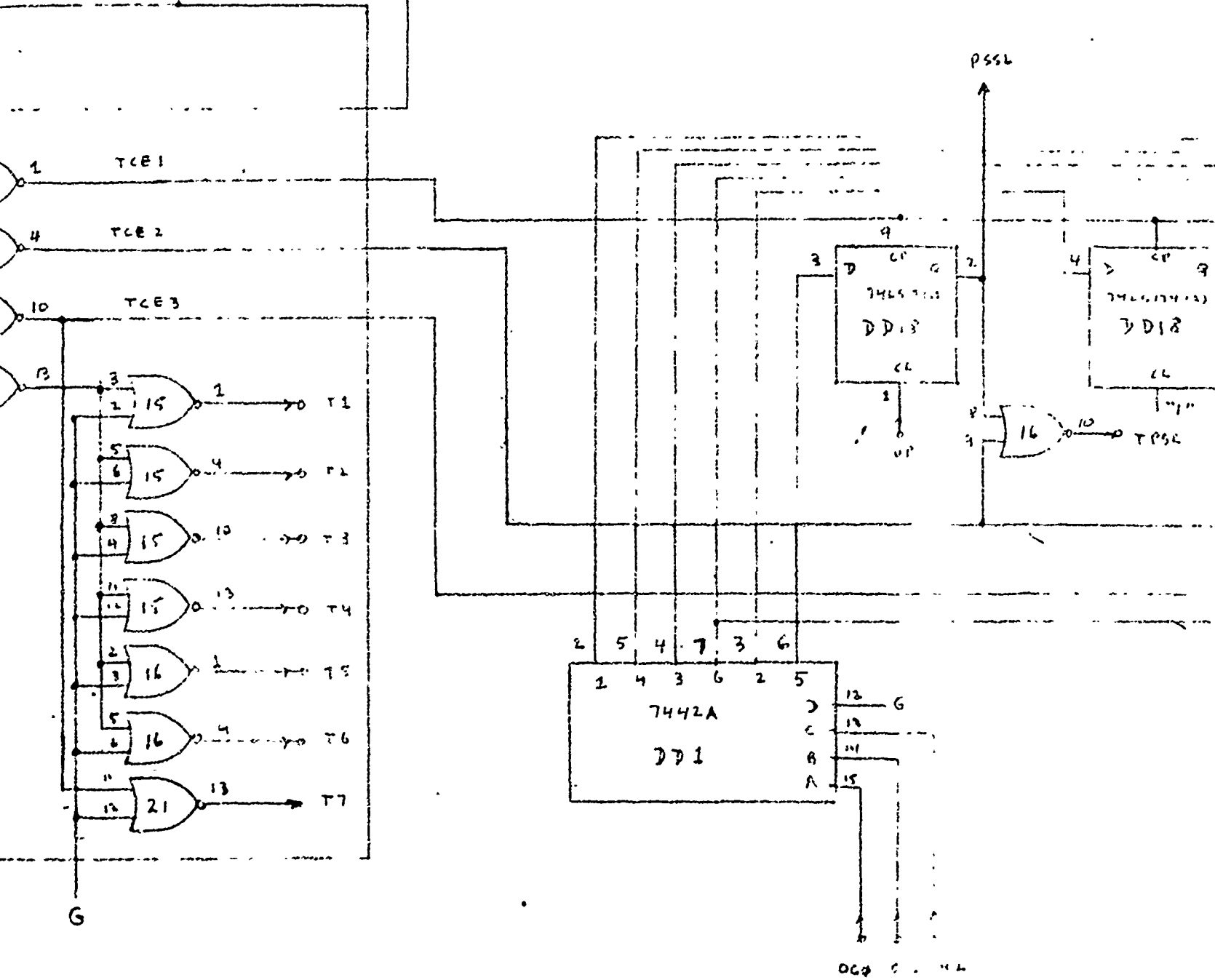
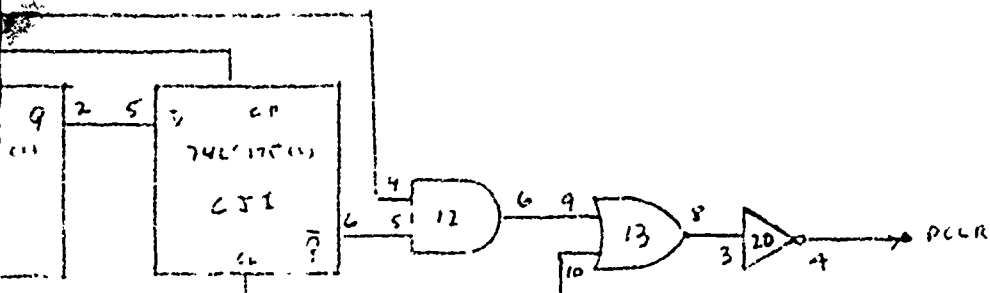
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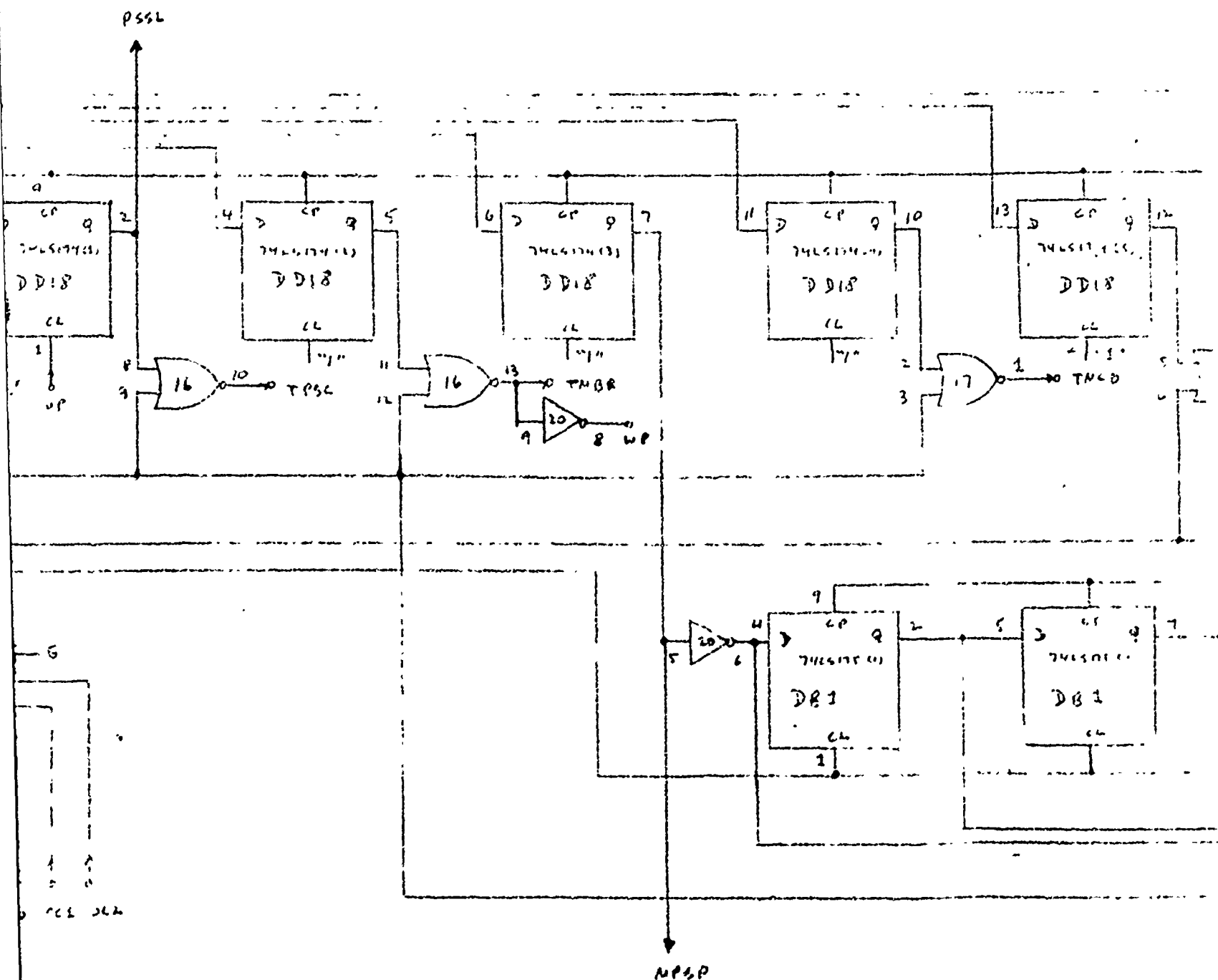
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TIMING, LATCH
INTERFET LOGIC

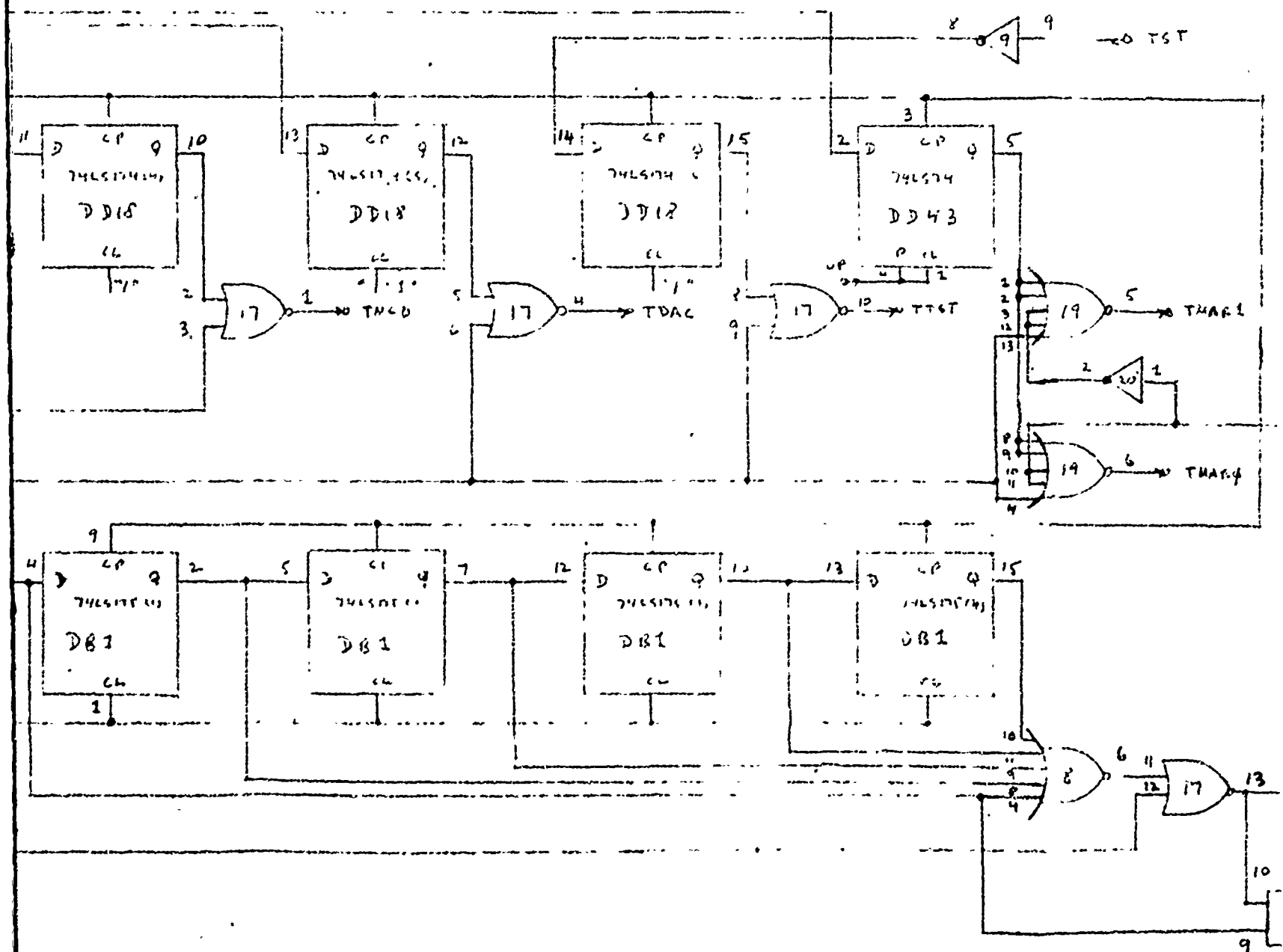
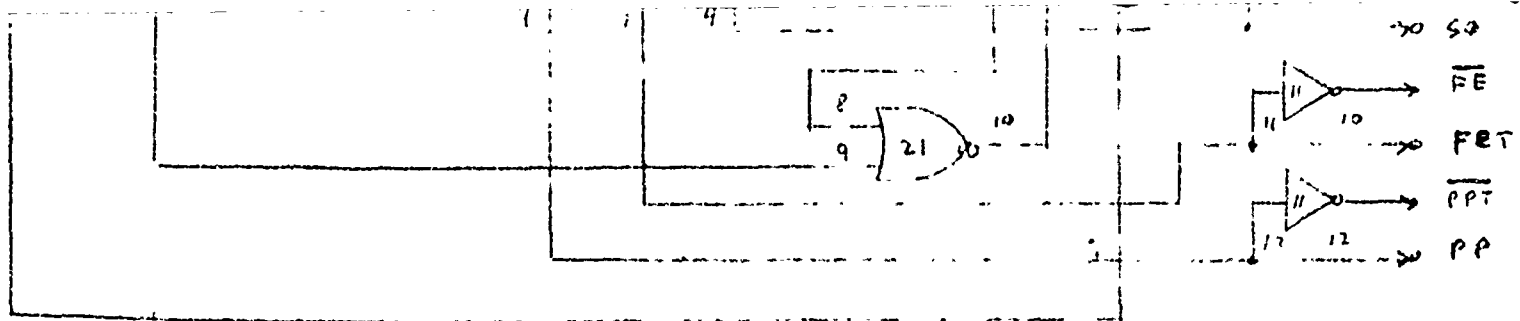


TIMING LATCH AND
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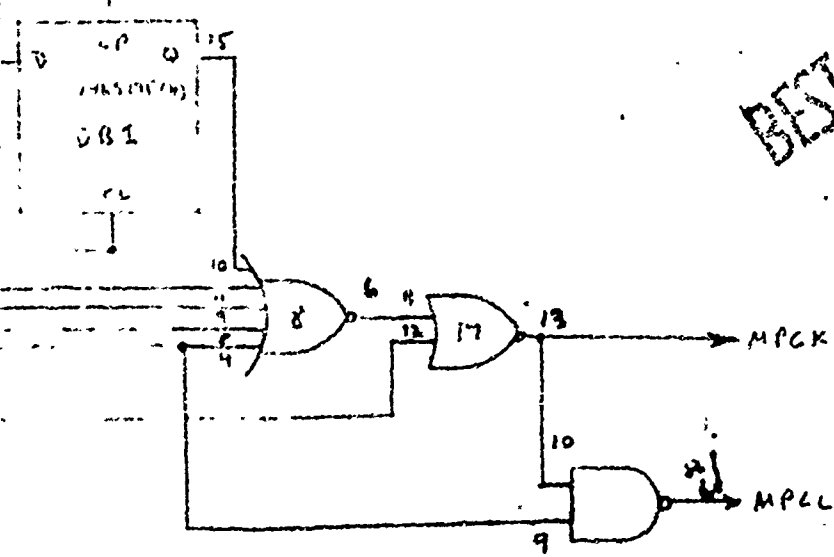
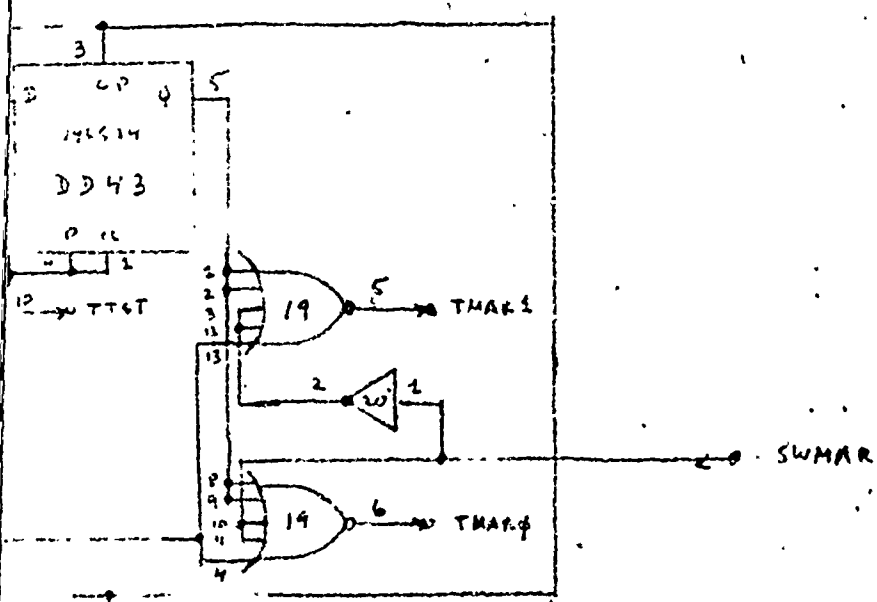
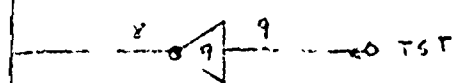
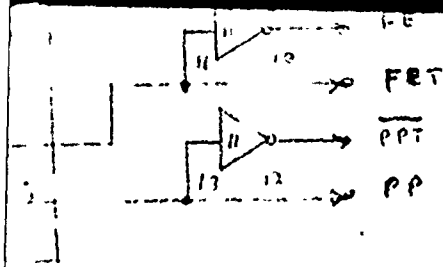
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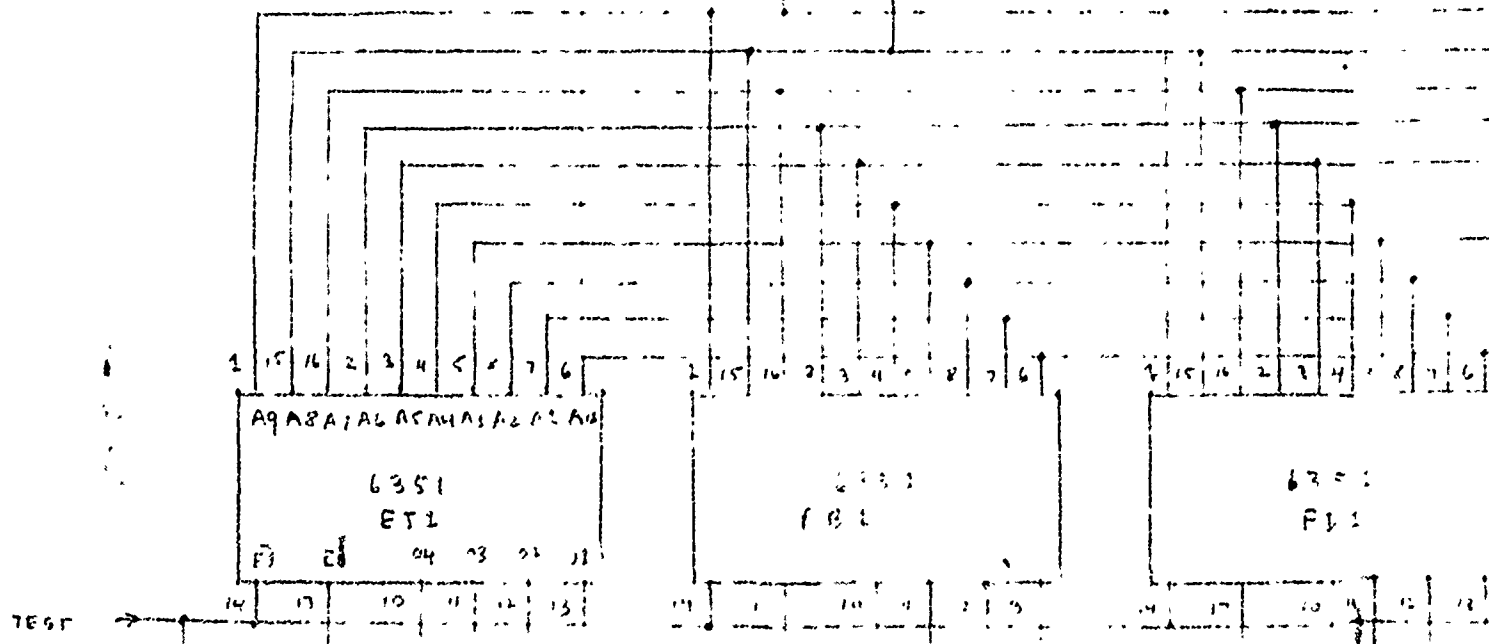
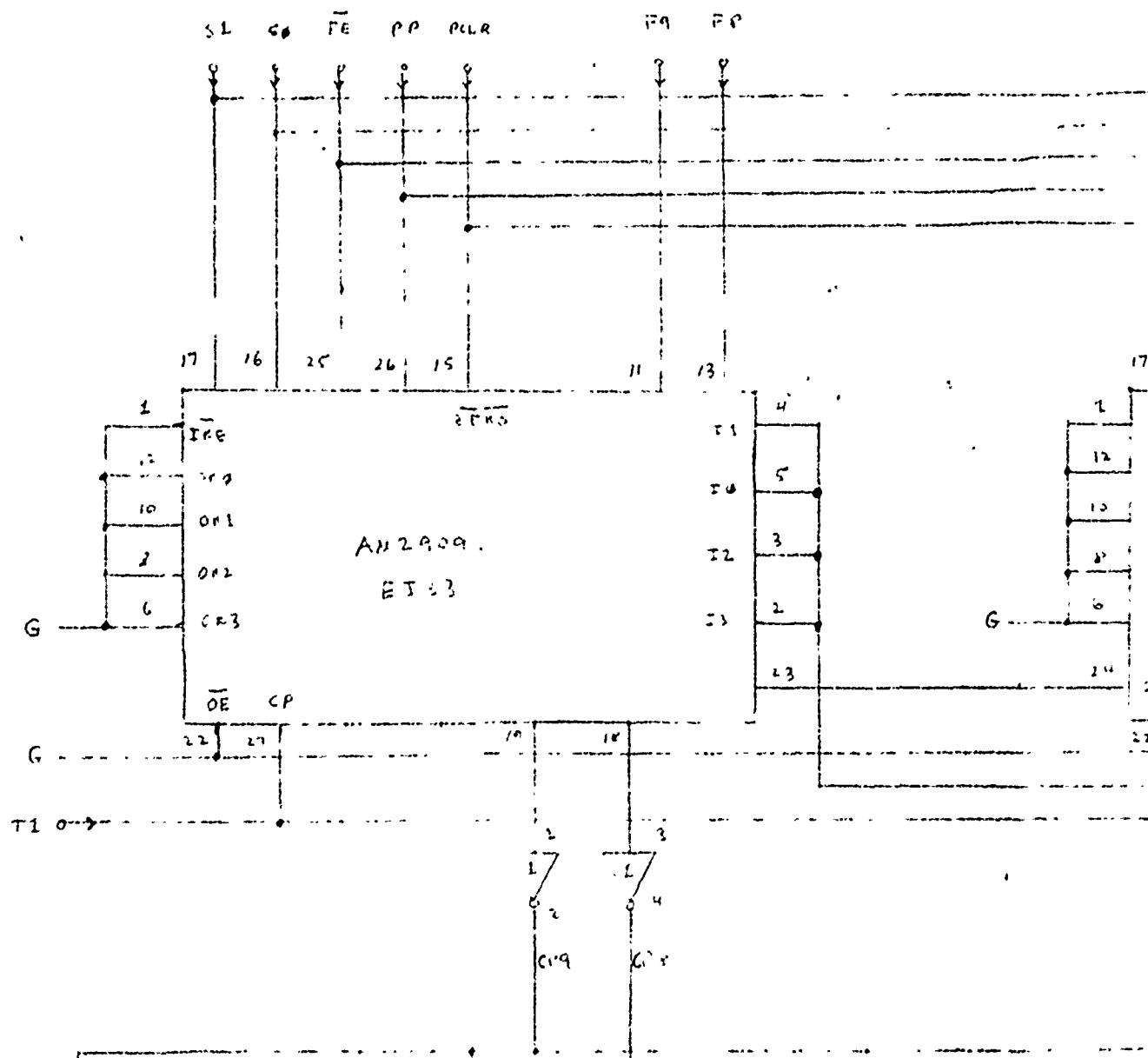
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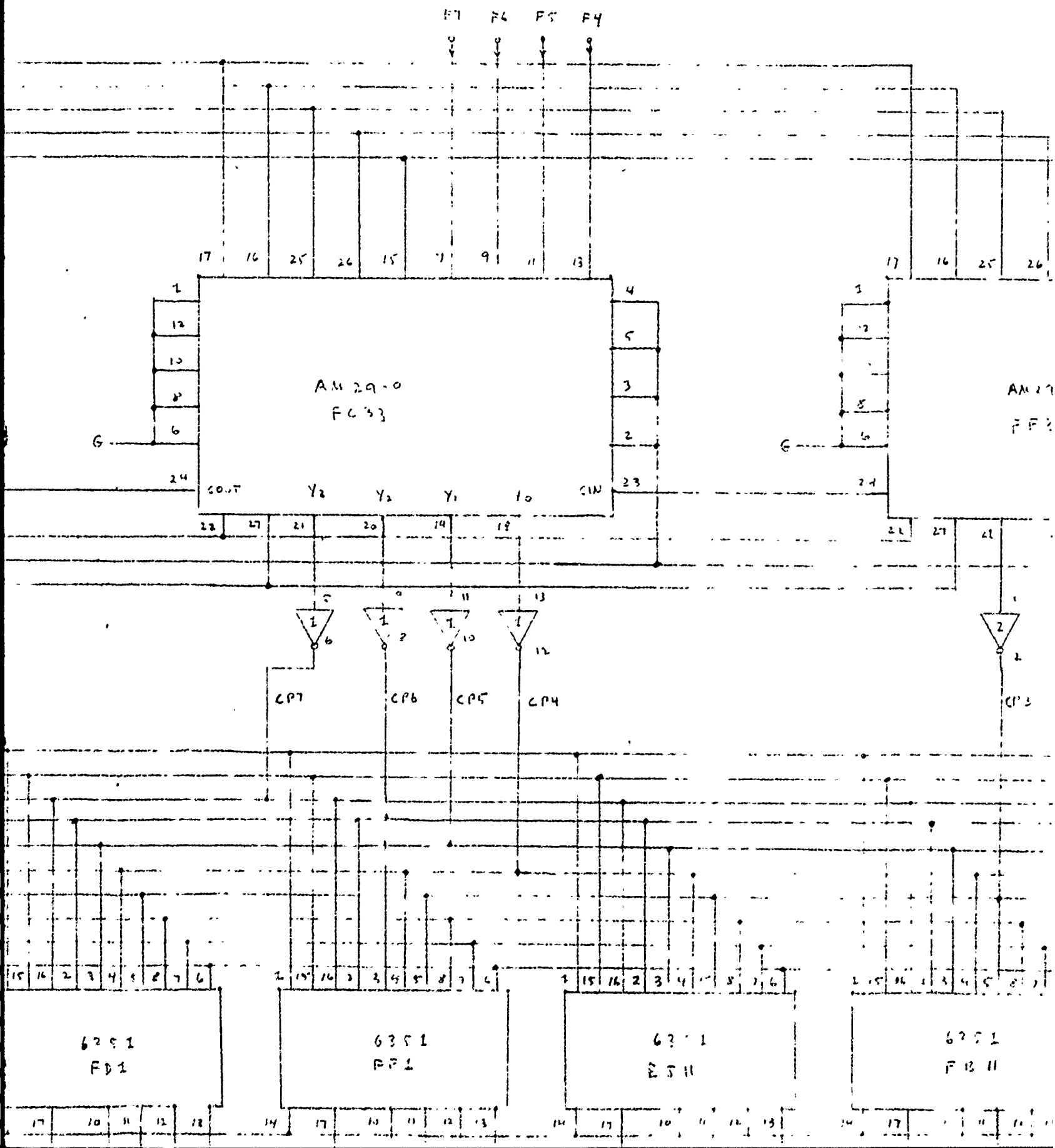
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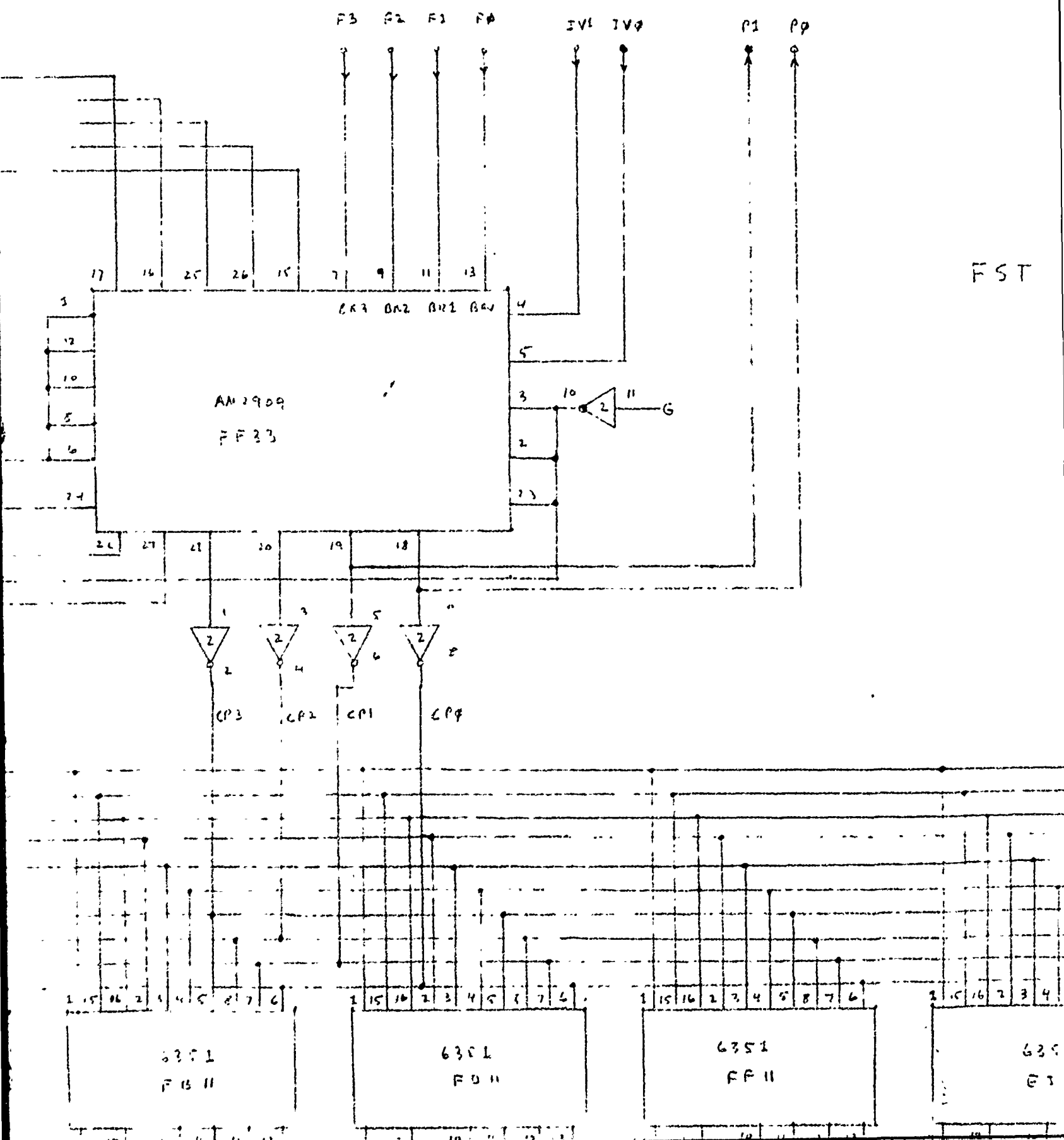
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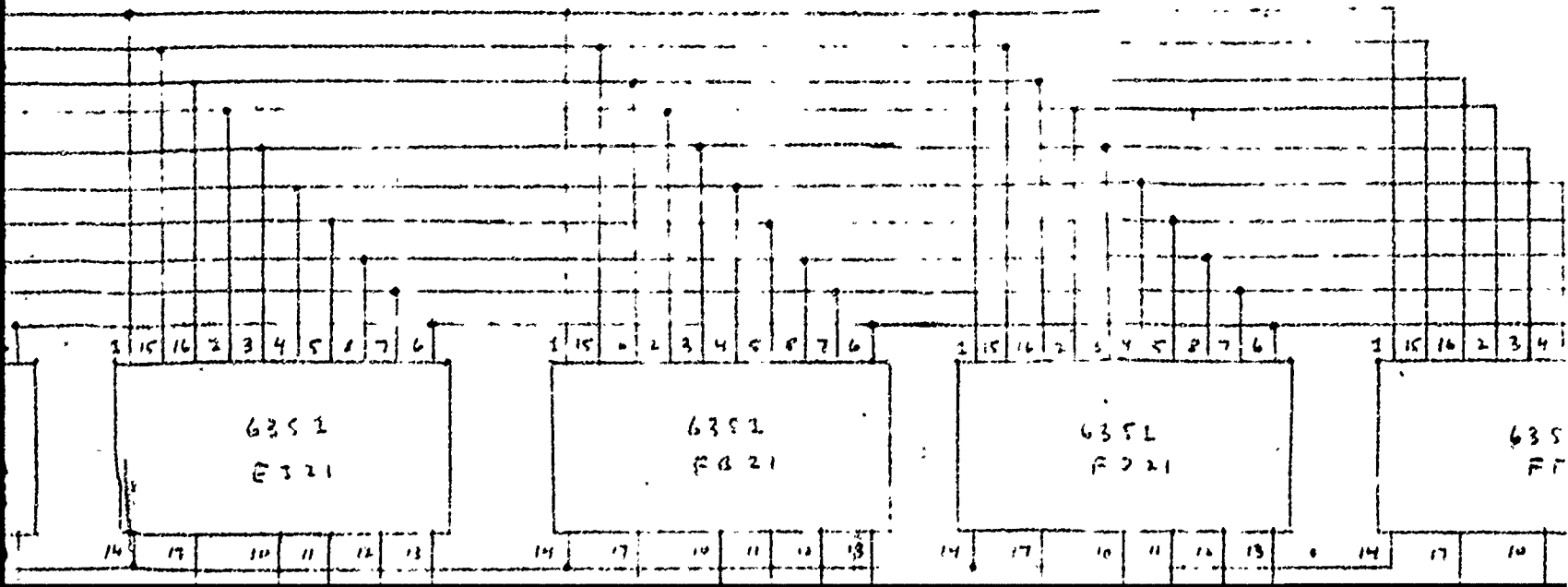


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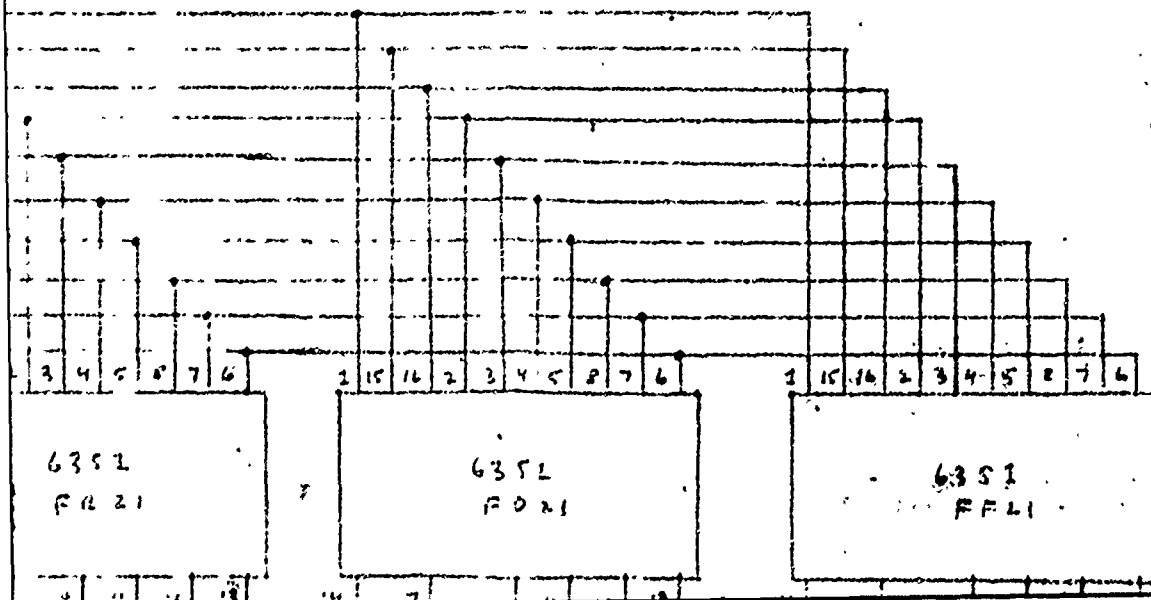
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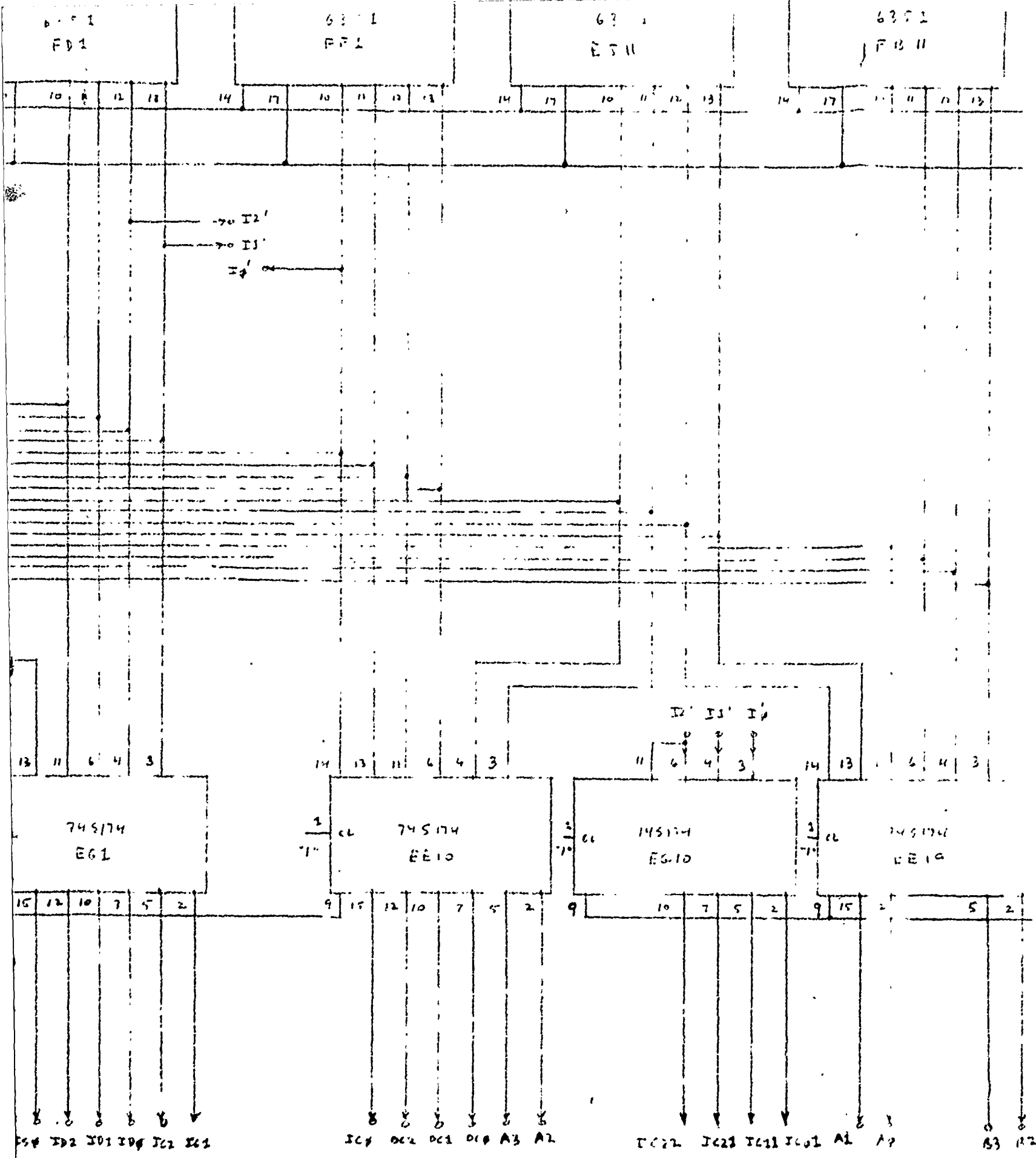


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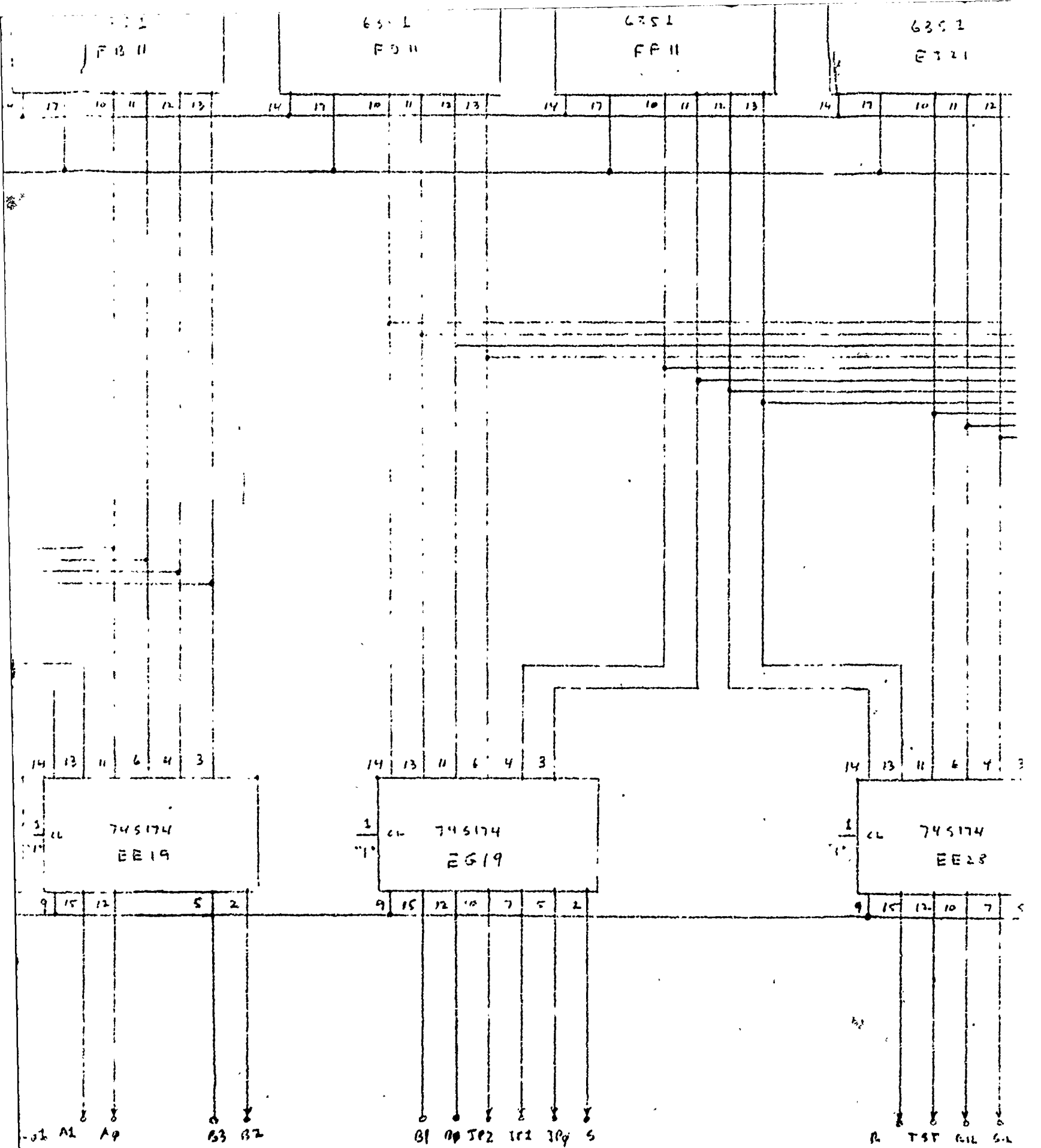
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2/3/76

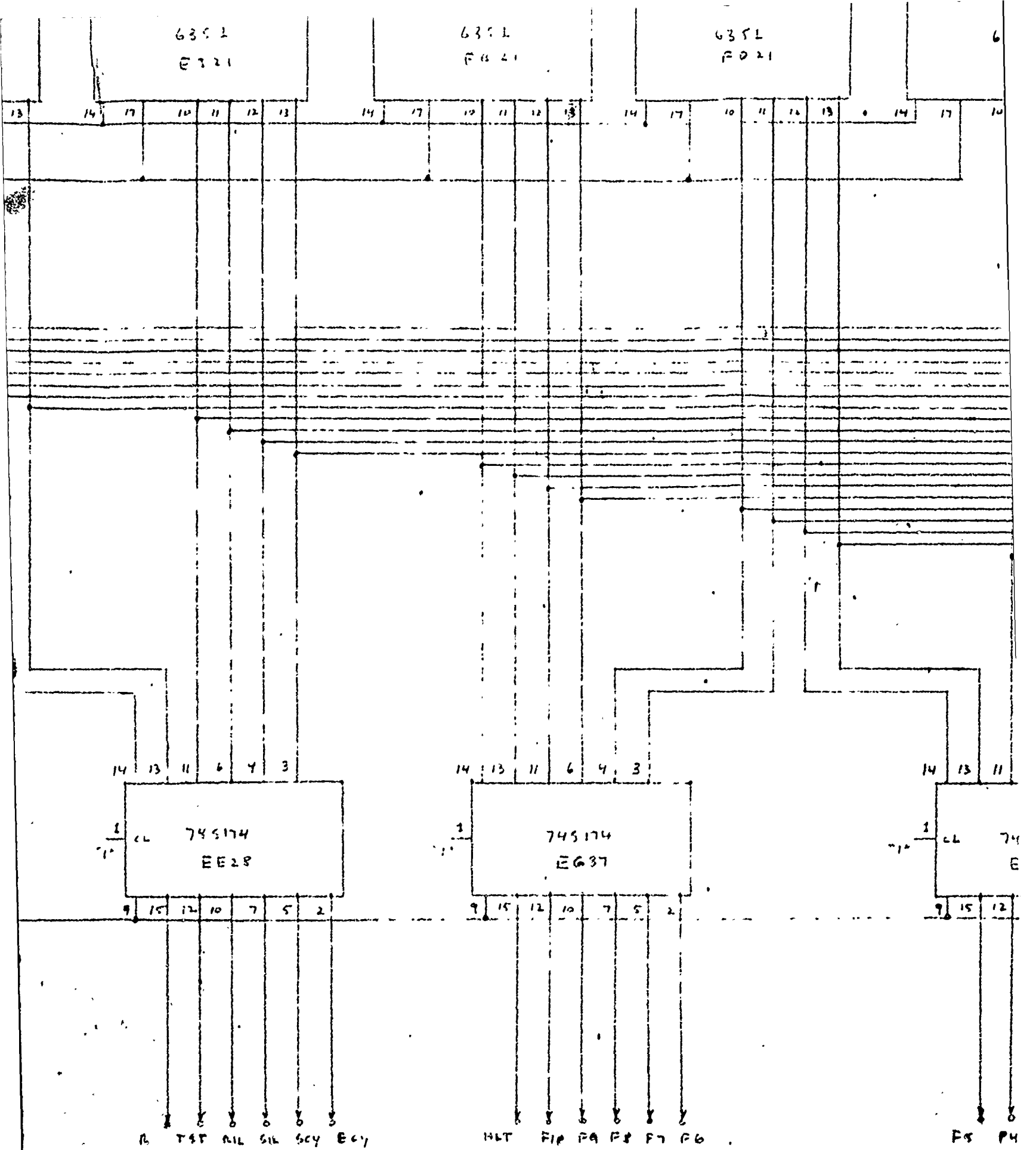




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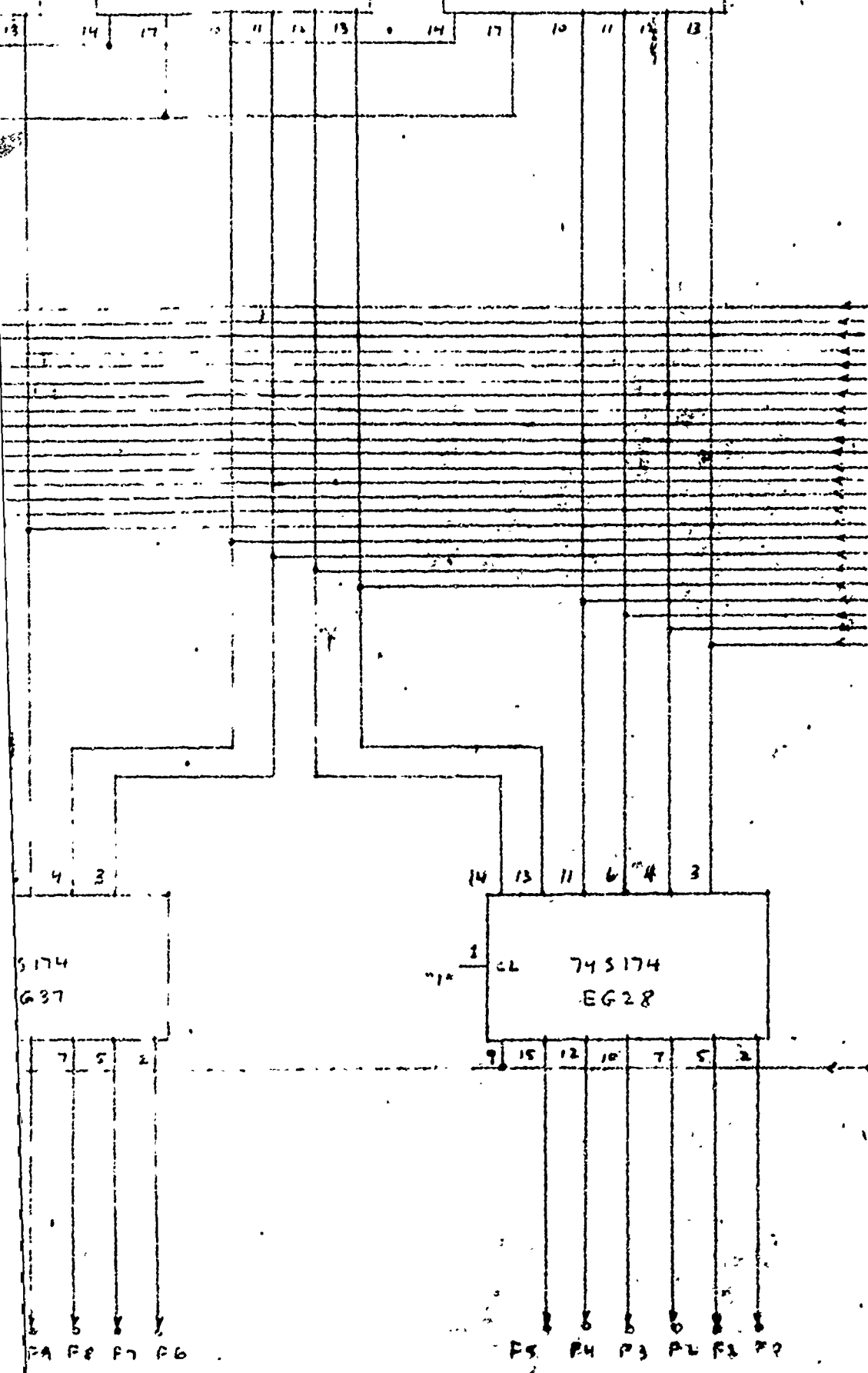


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6351
F021

6351
FF21

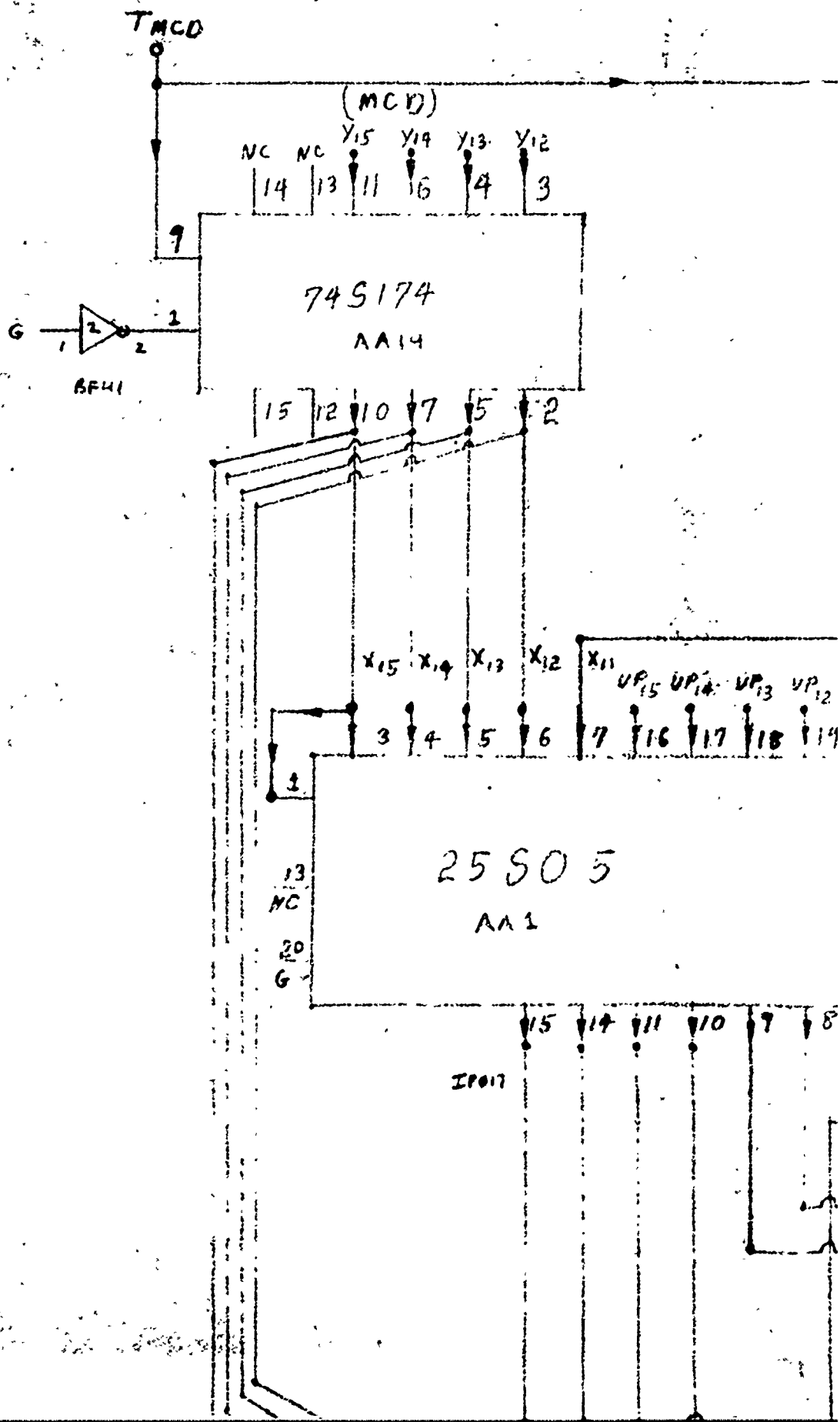


MP23
MP22
MP21
MP20
MP19
MP18
MP17
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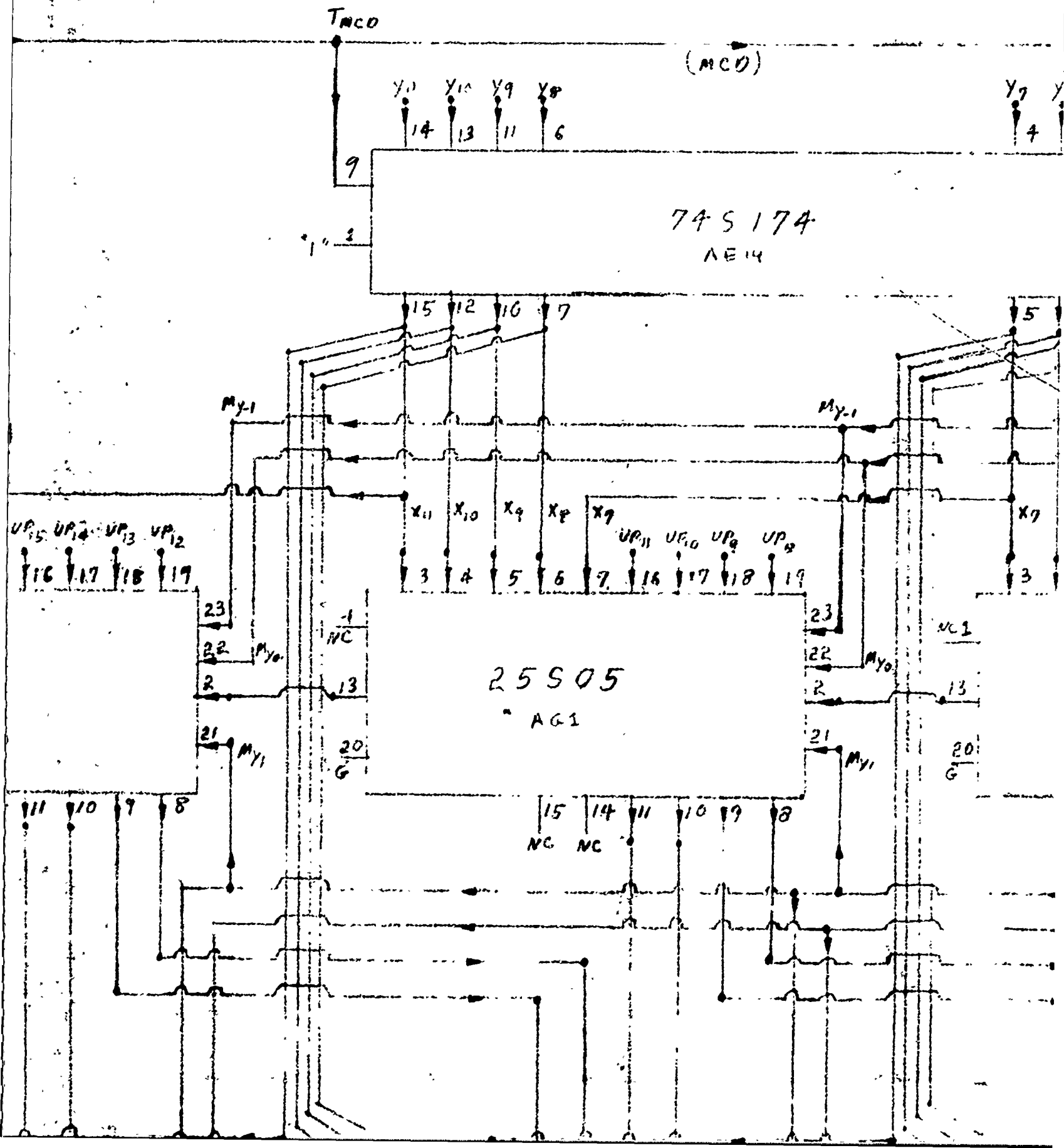
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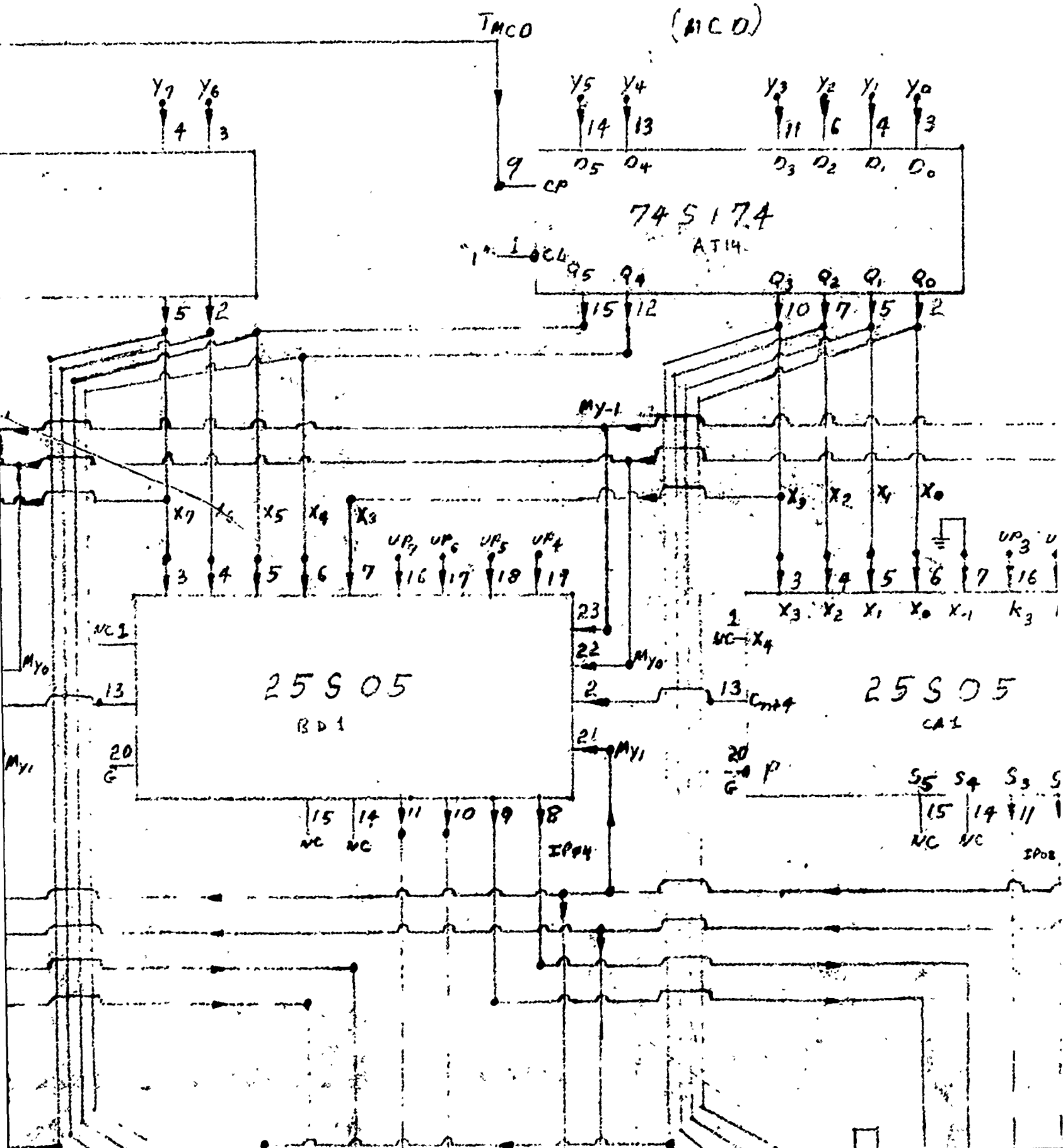
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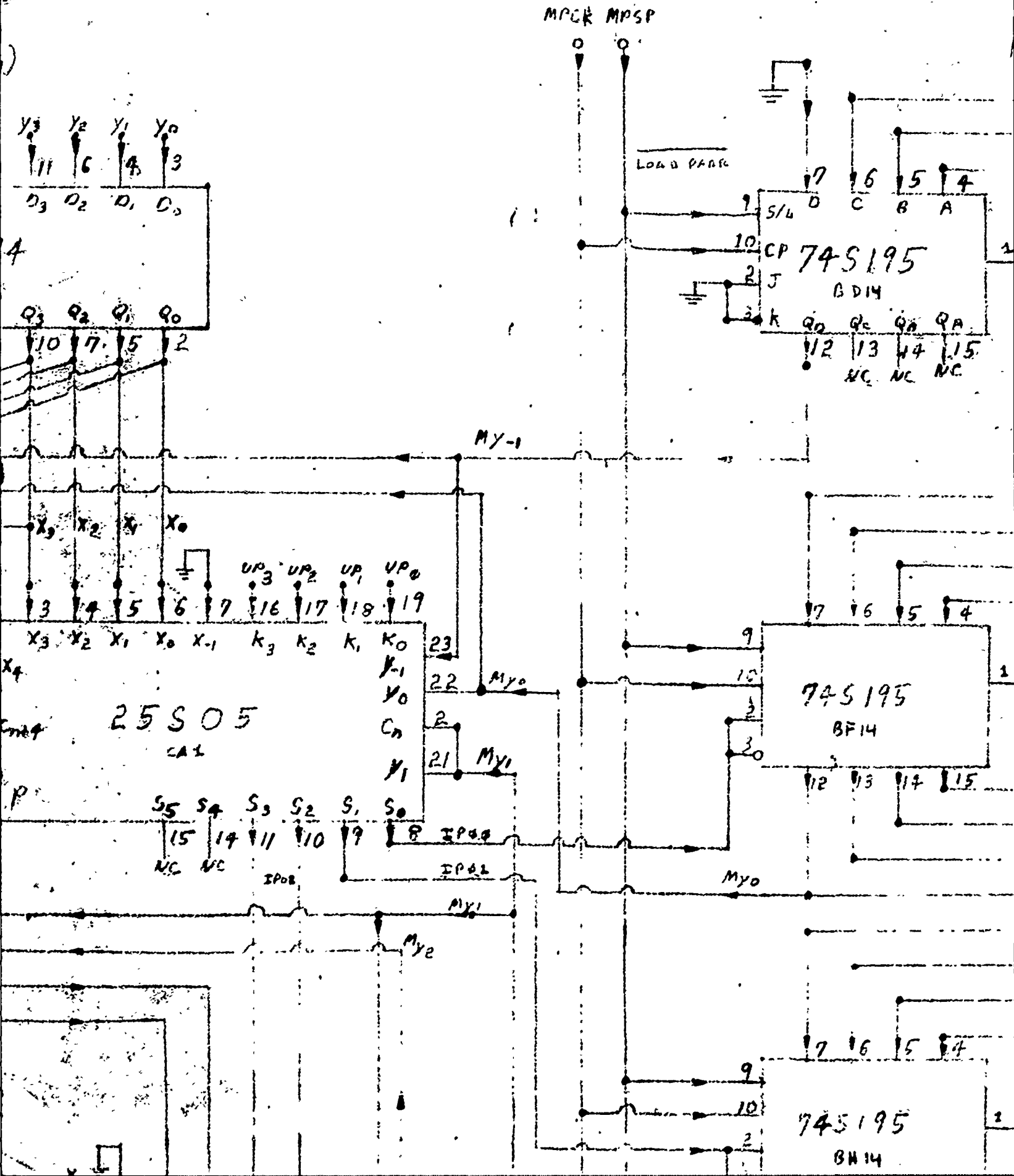
1 2



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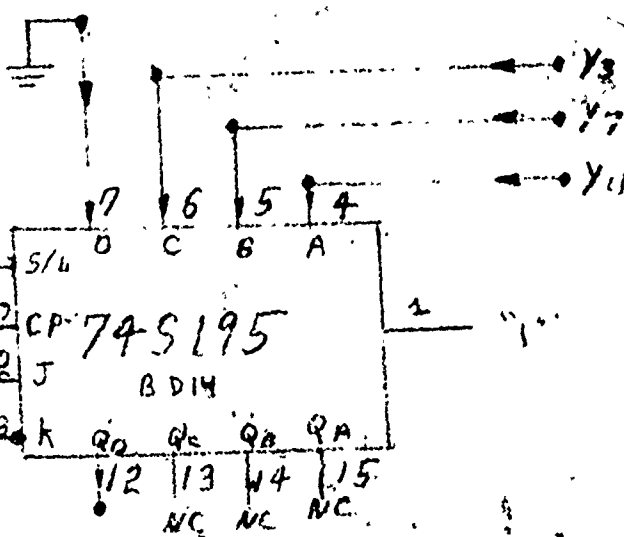
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MPCK MPSP

MPR

LOAD PARR



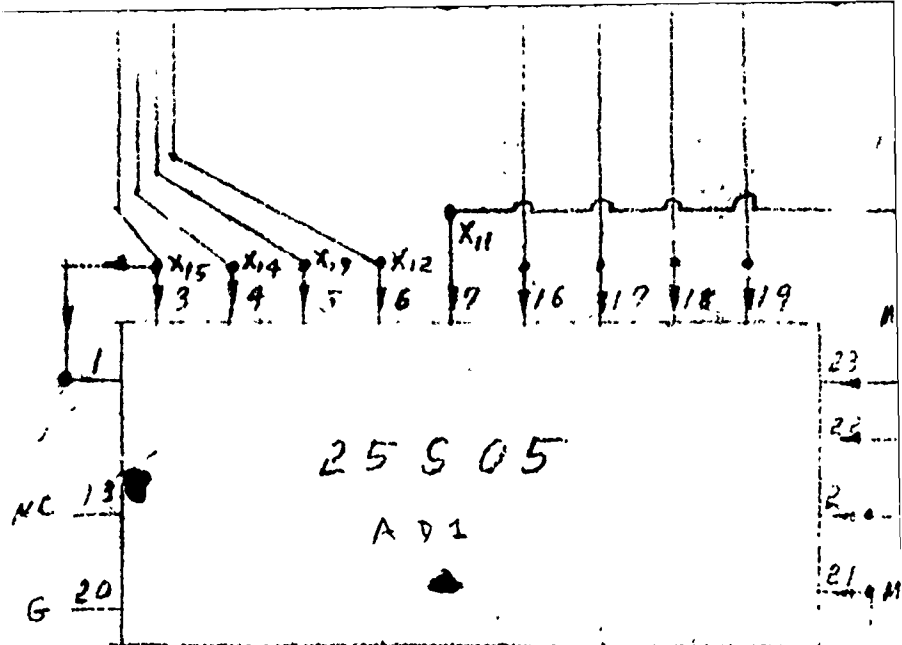
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745195
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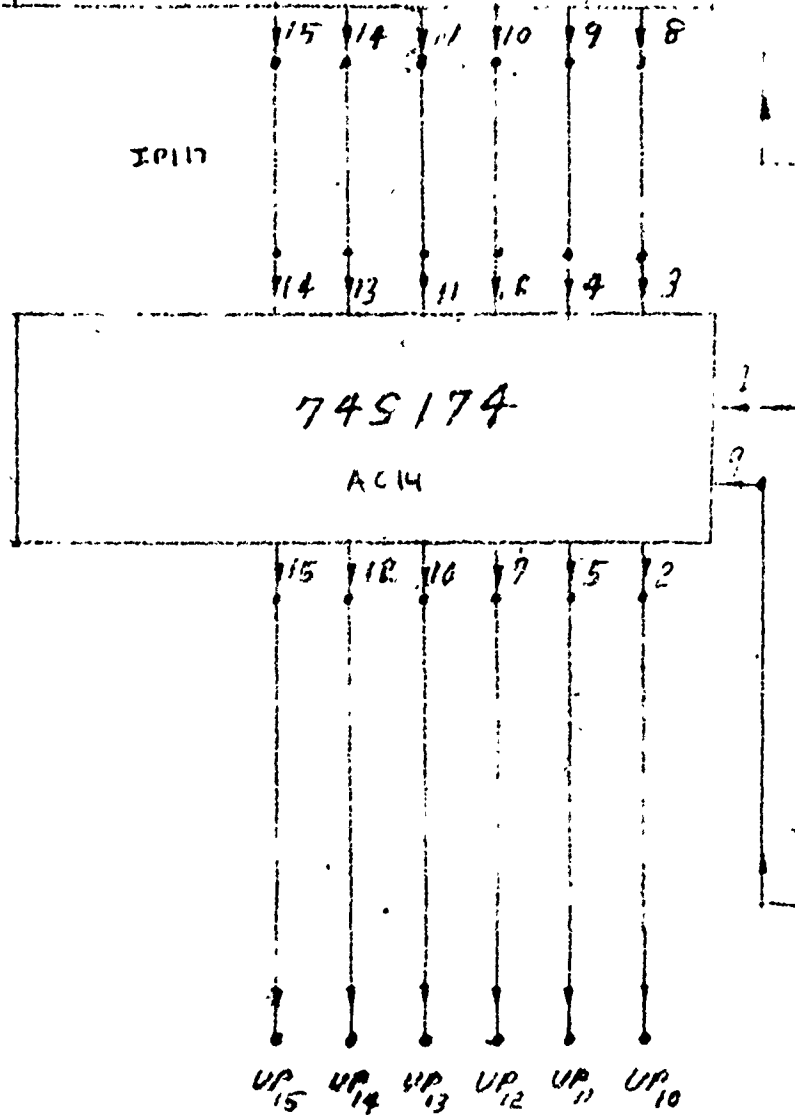
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LP12 LP8 LP4

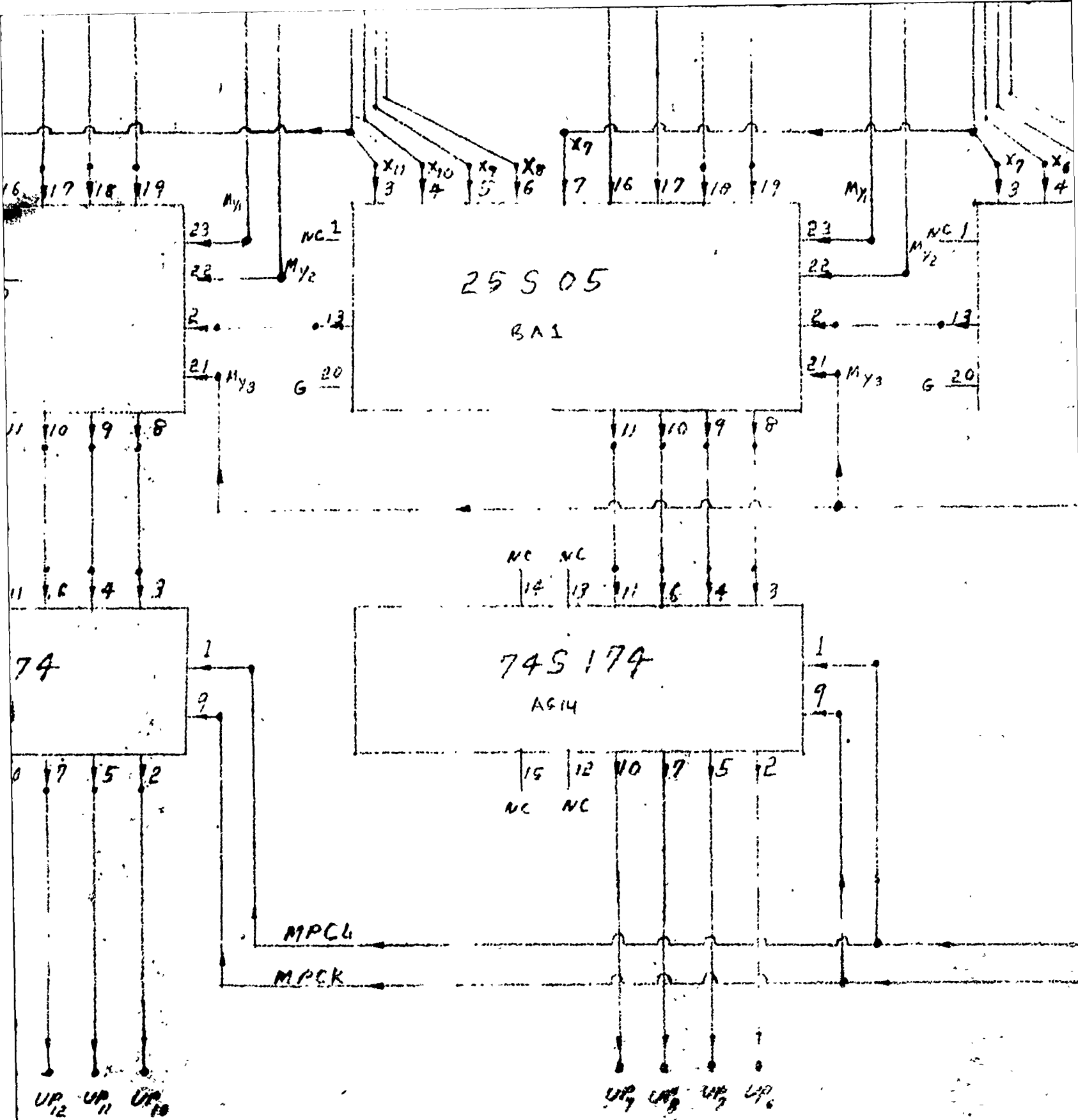
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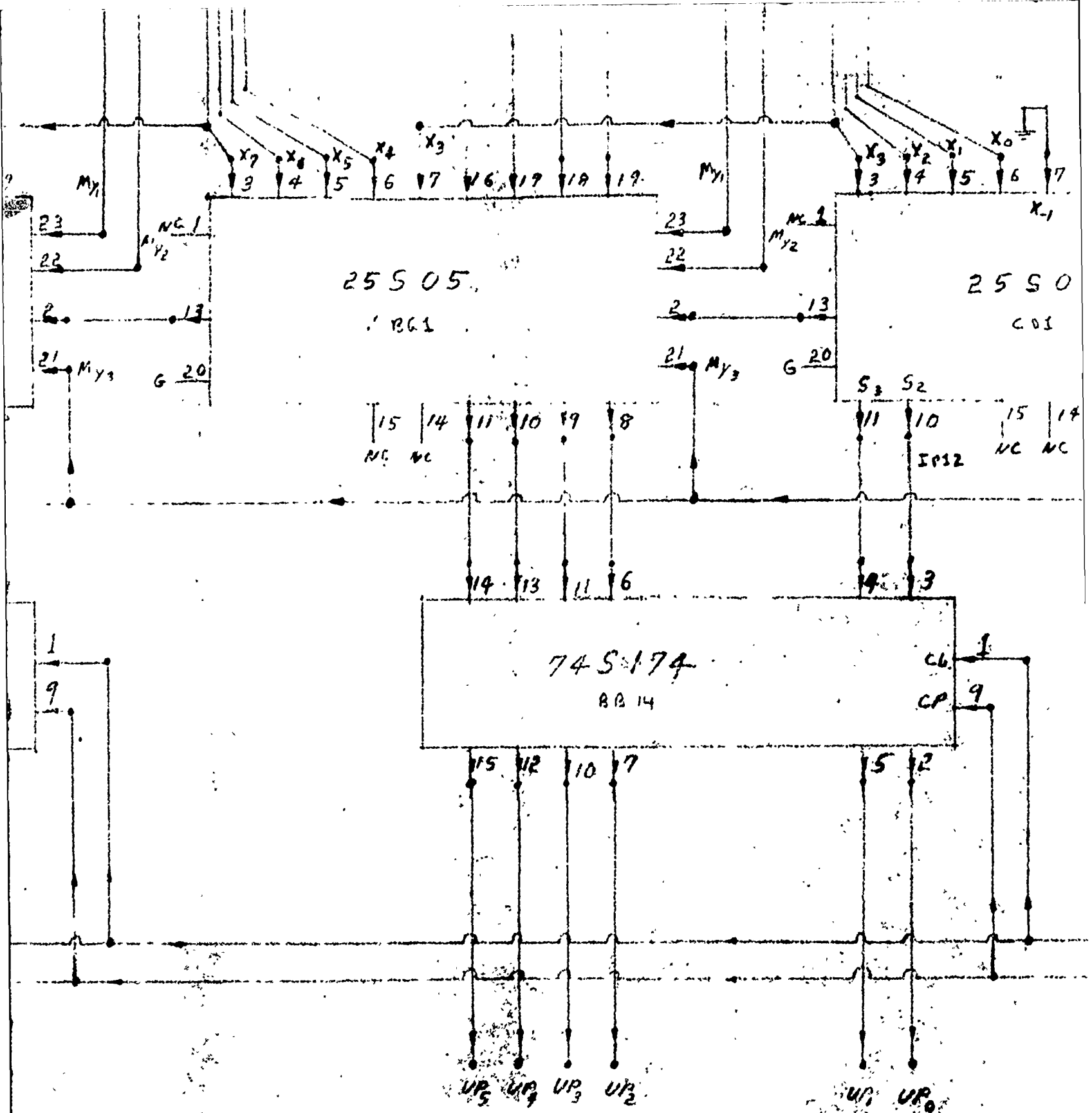


IP117





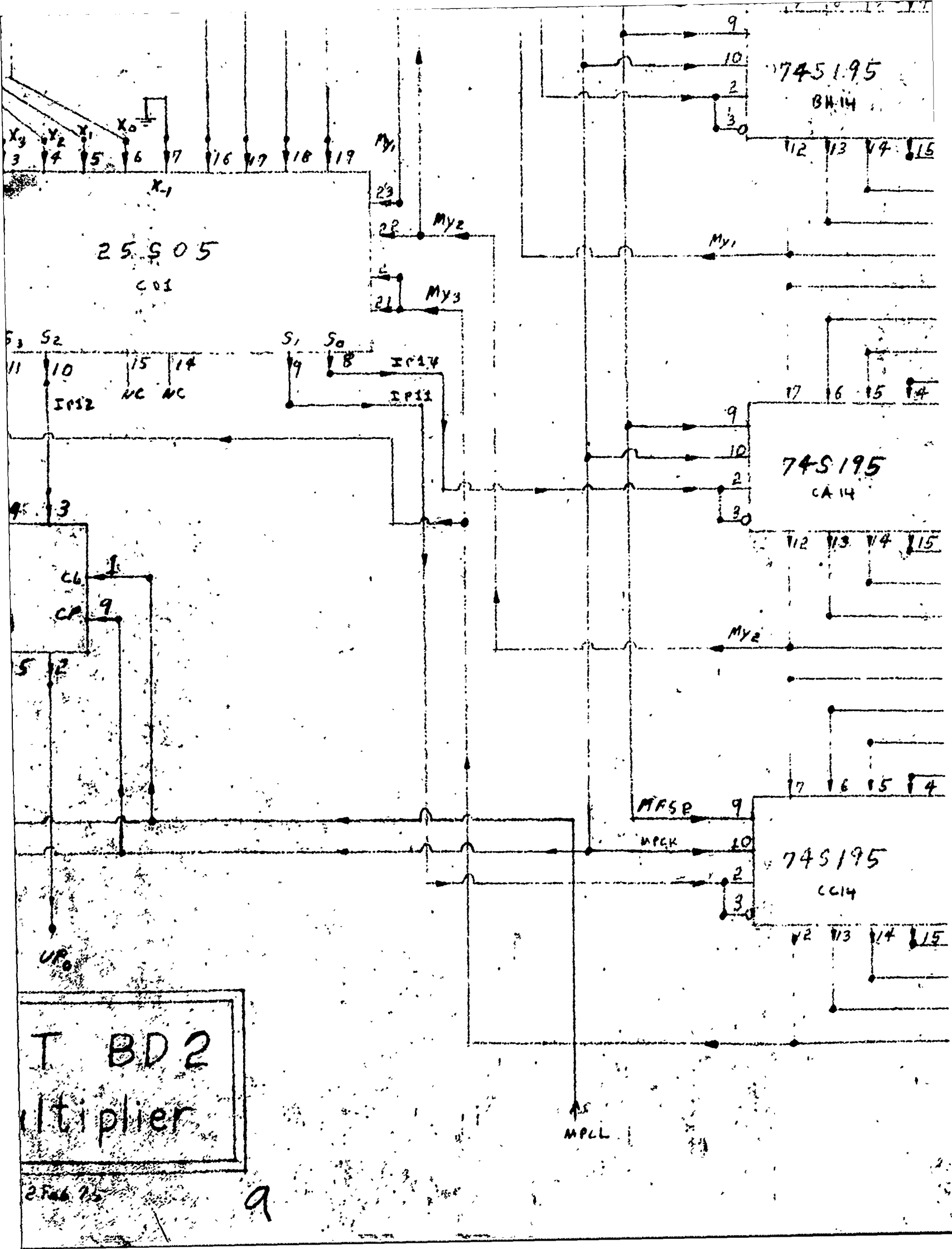
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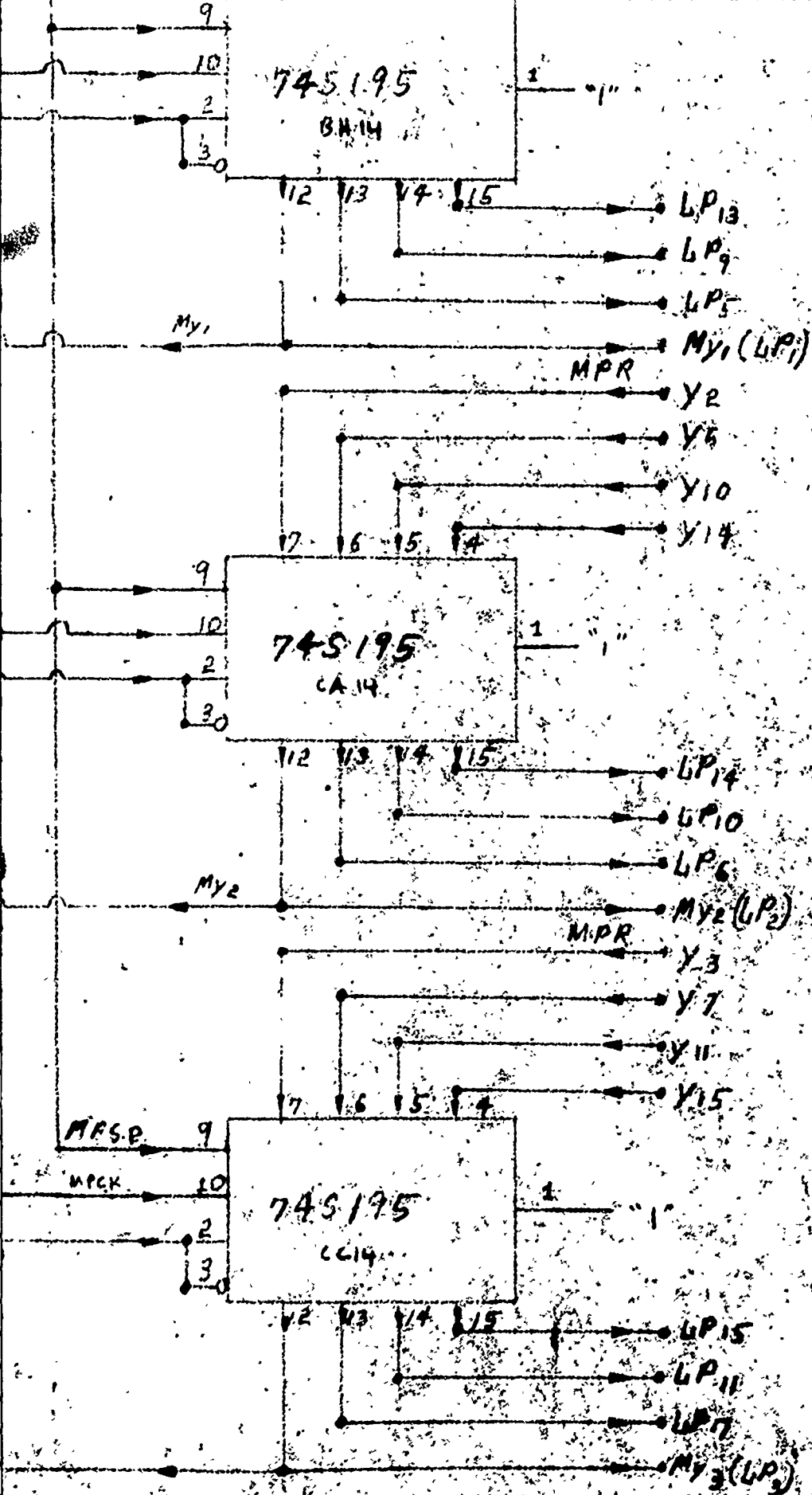


FST BD2
Multiplier

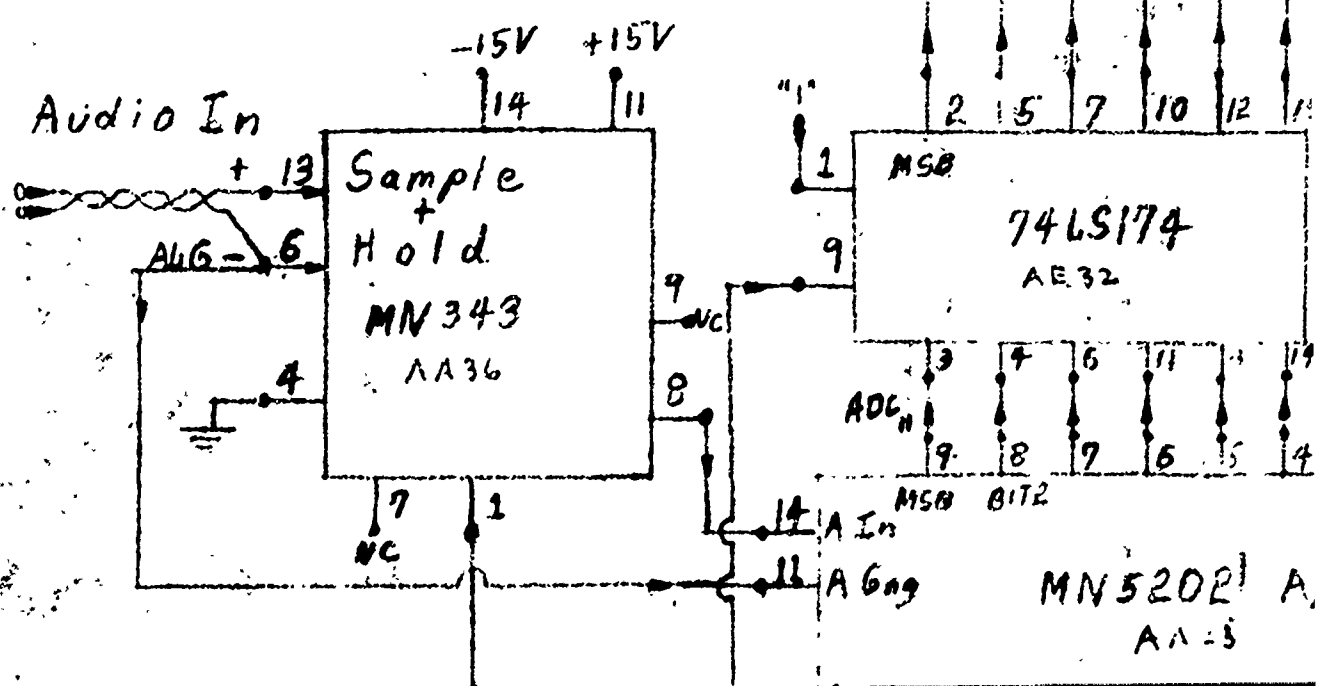
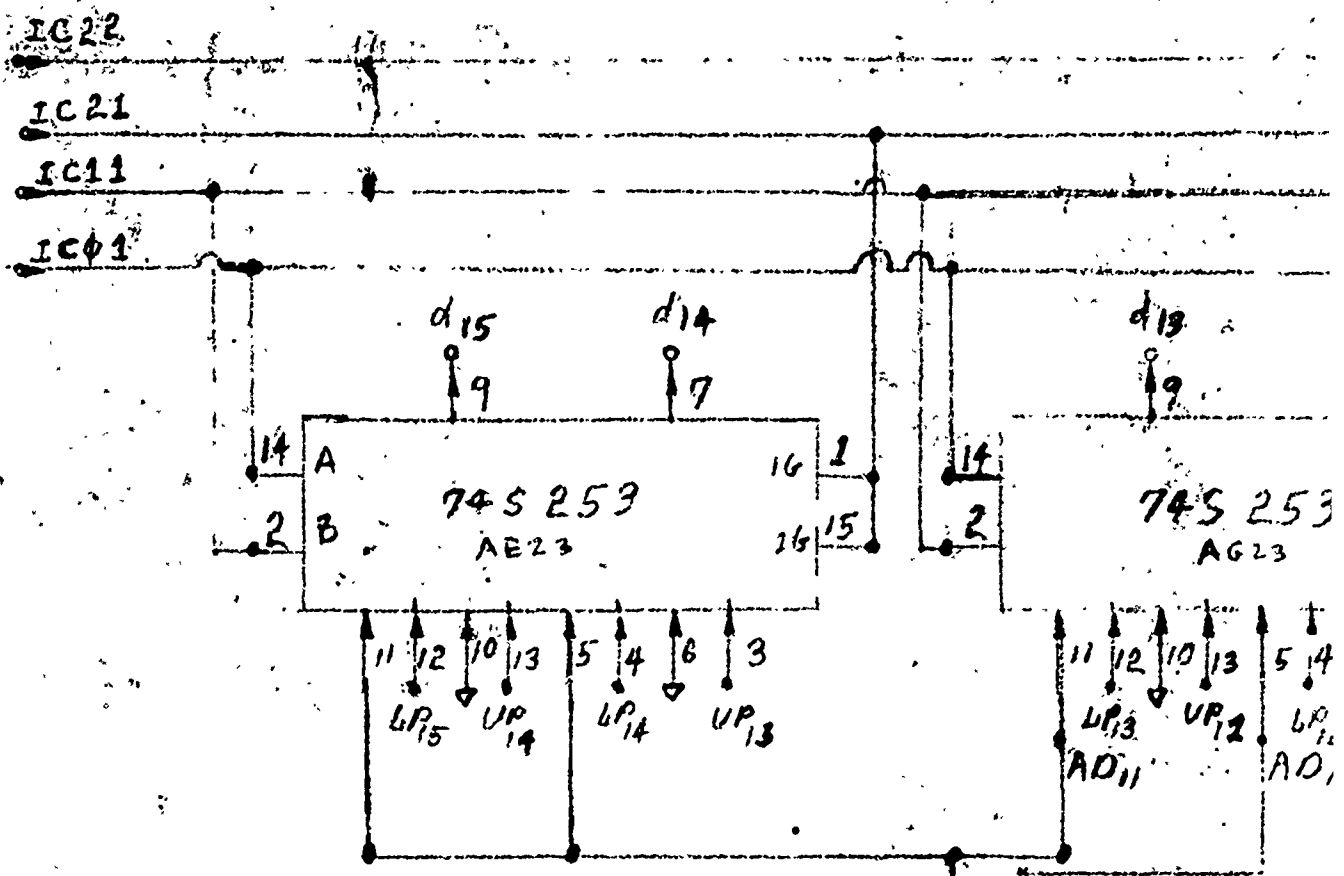
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2 Feb 25

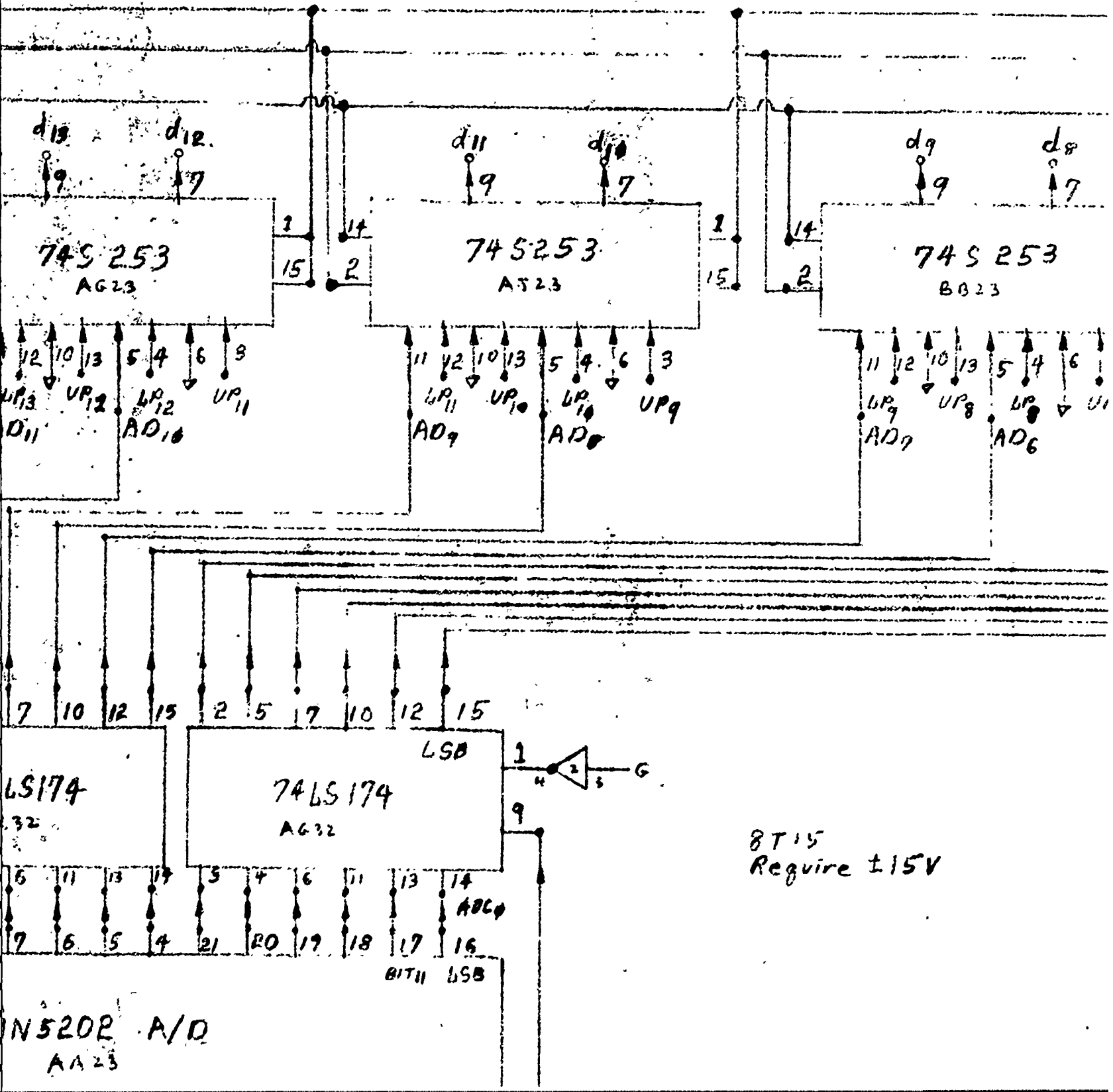




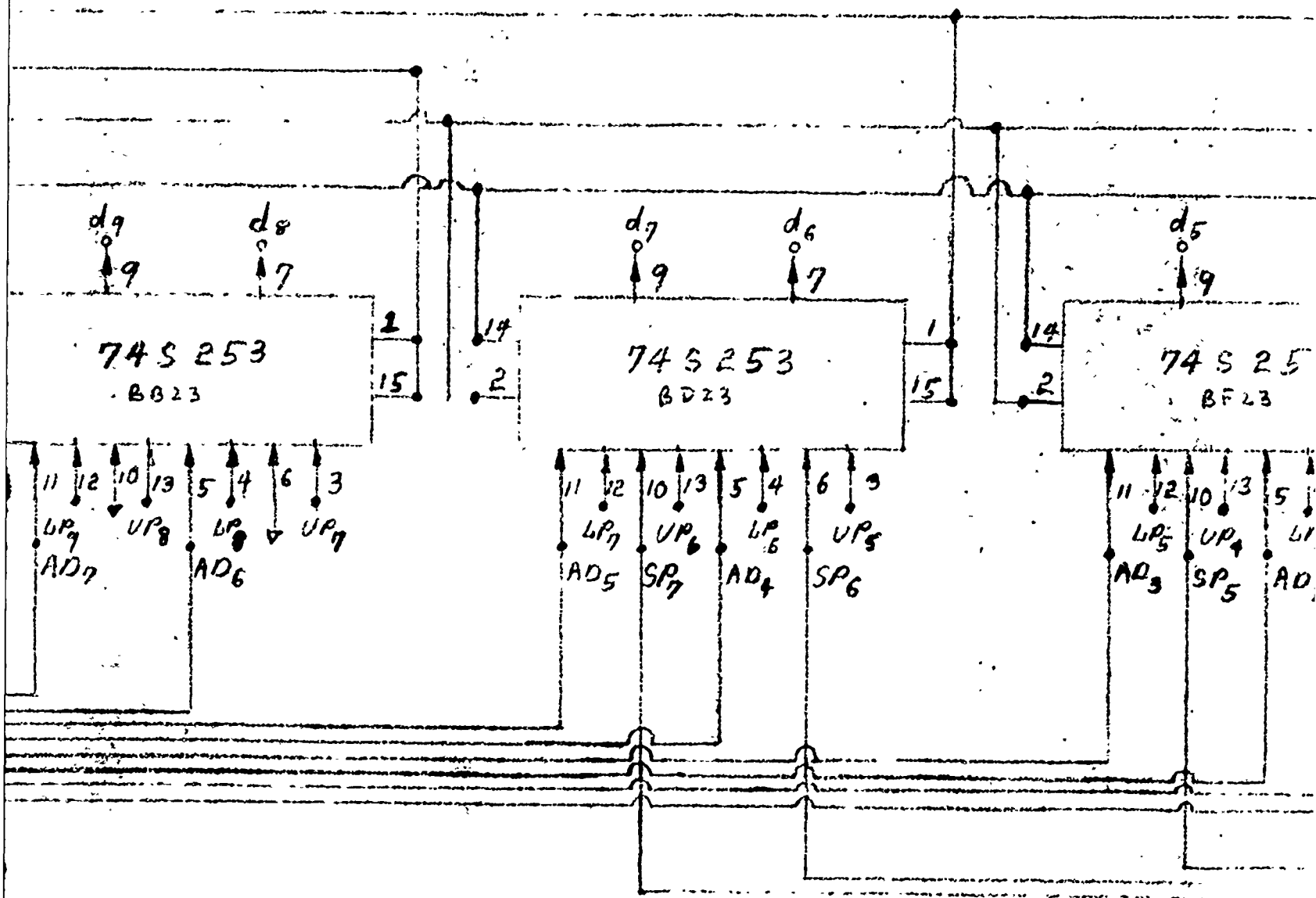
10/25/76
EMH



2



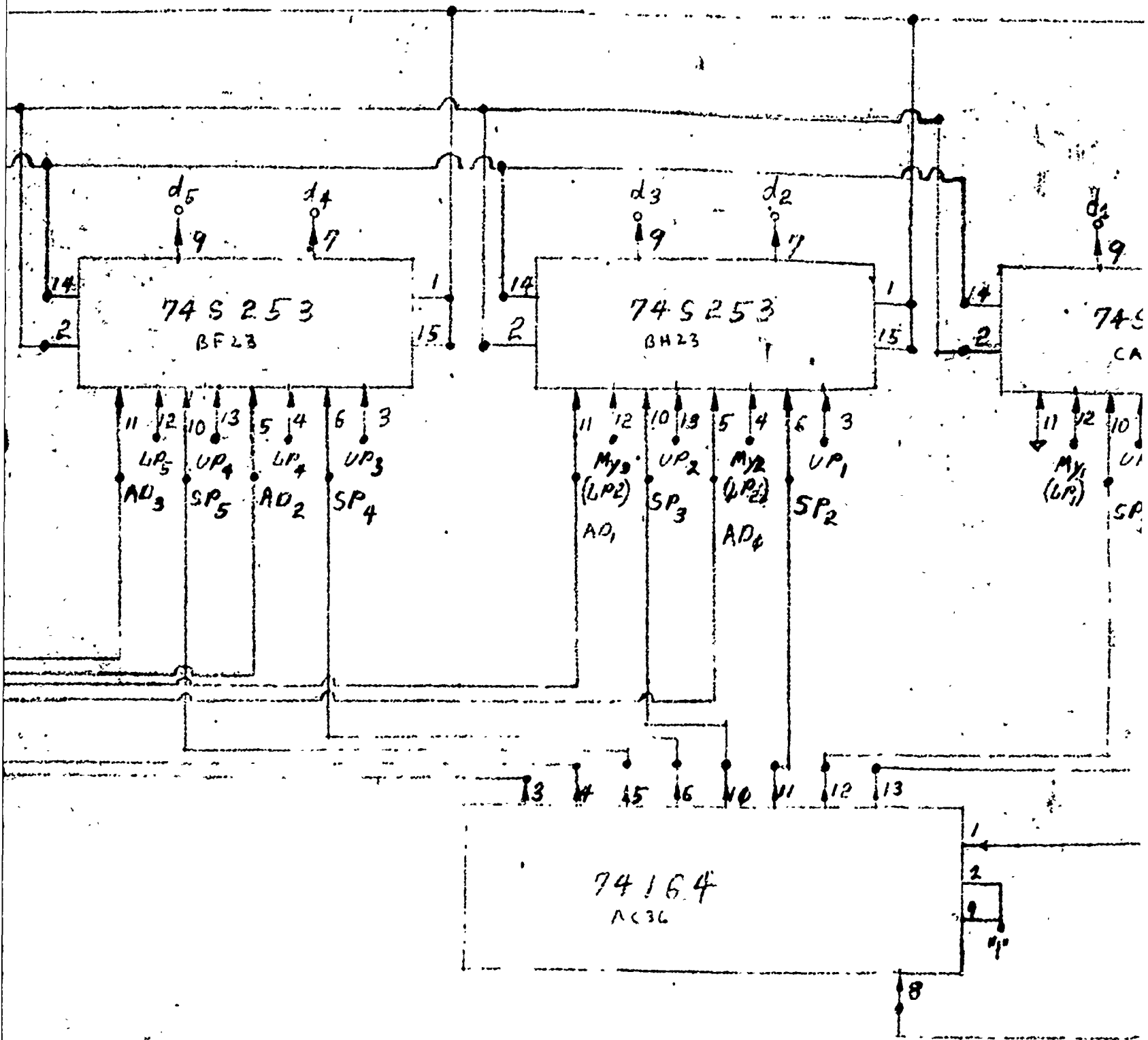
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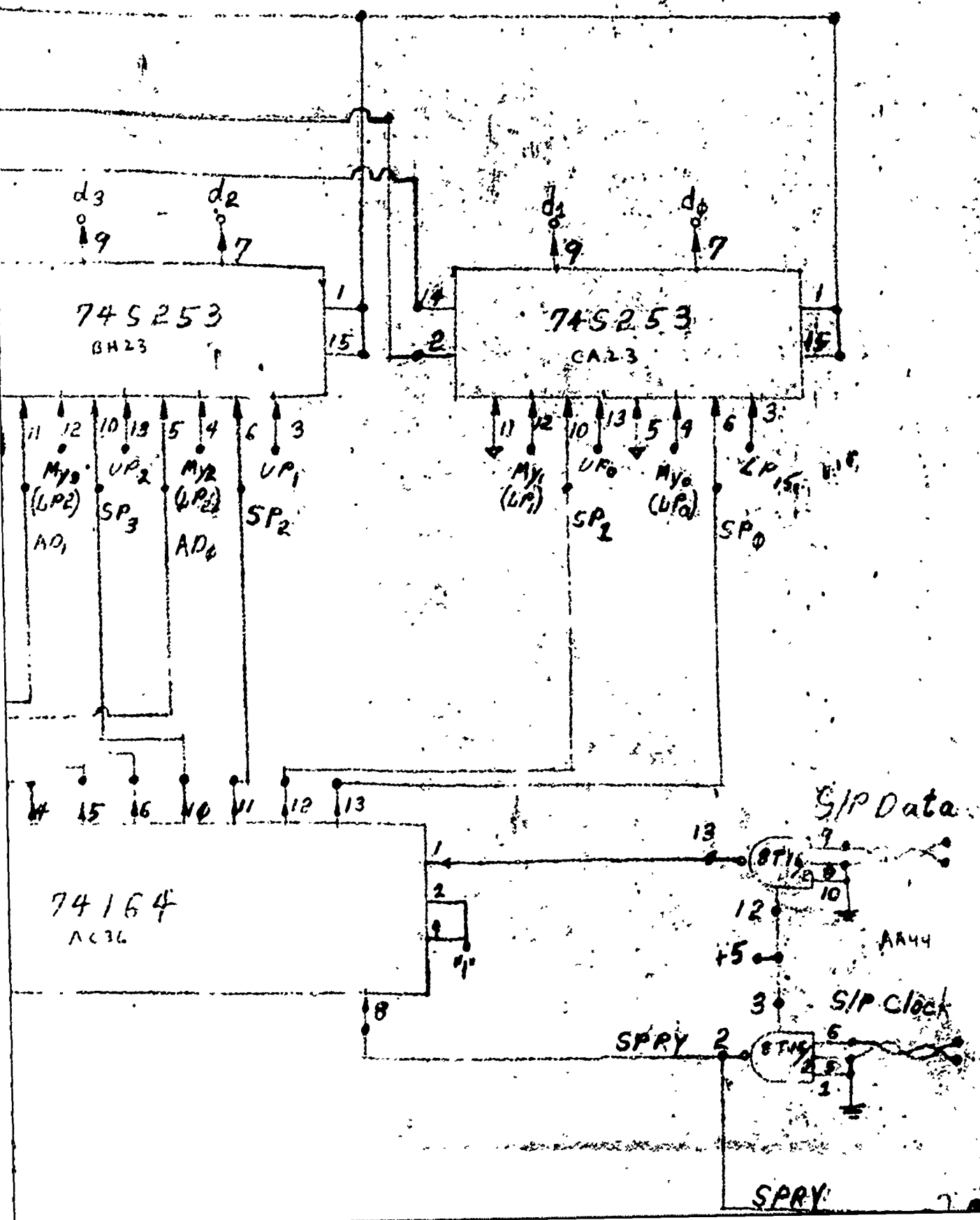
$\pm 15V$

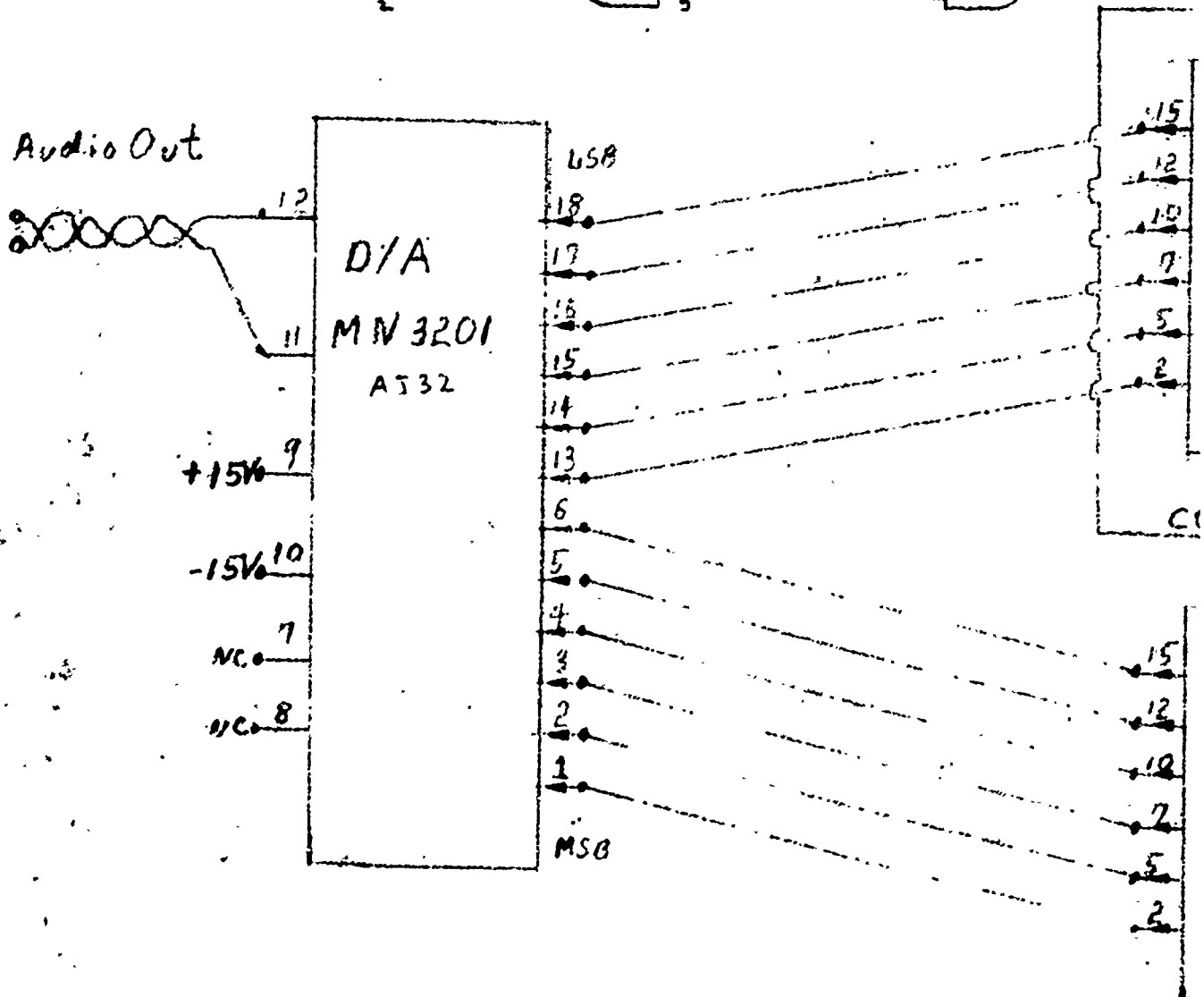
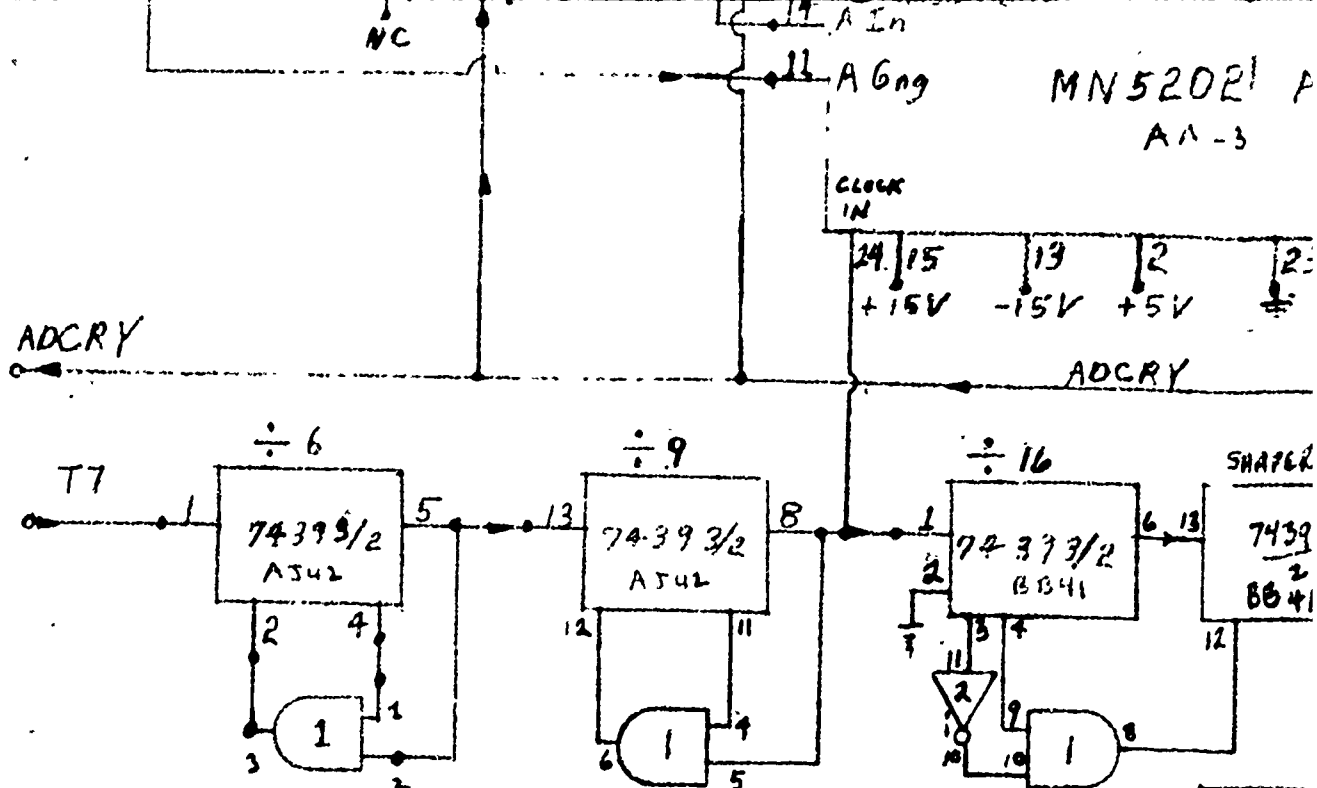
1 = 7402 BD41
2 = 7404 BF41

4



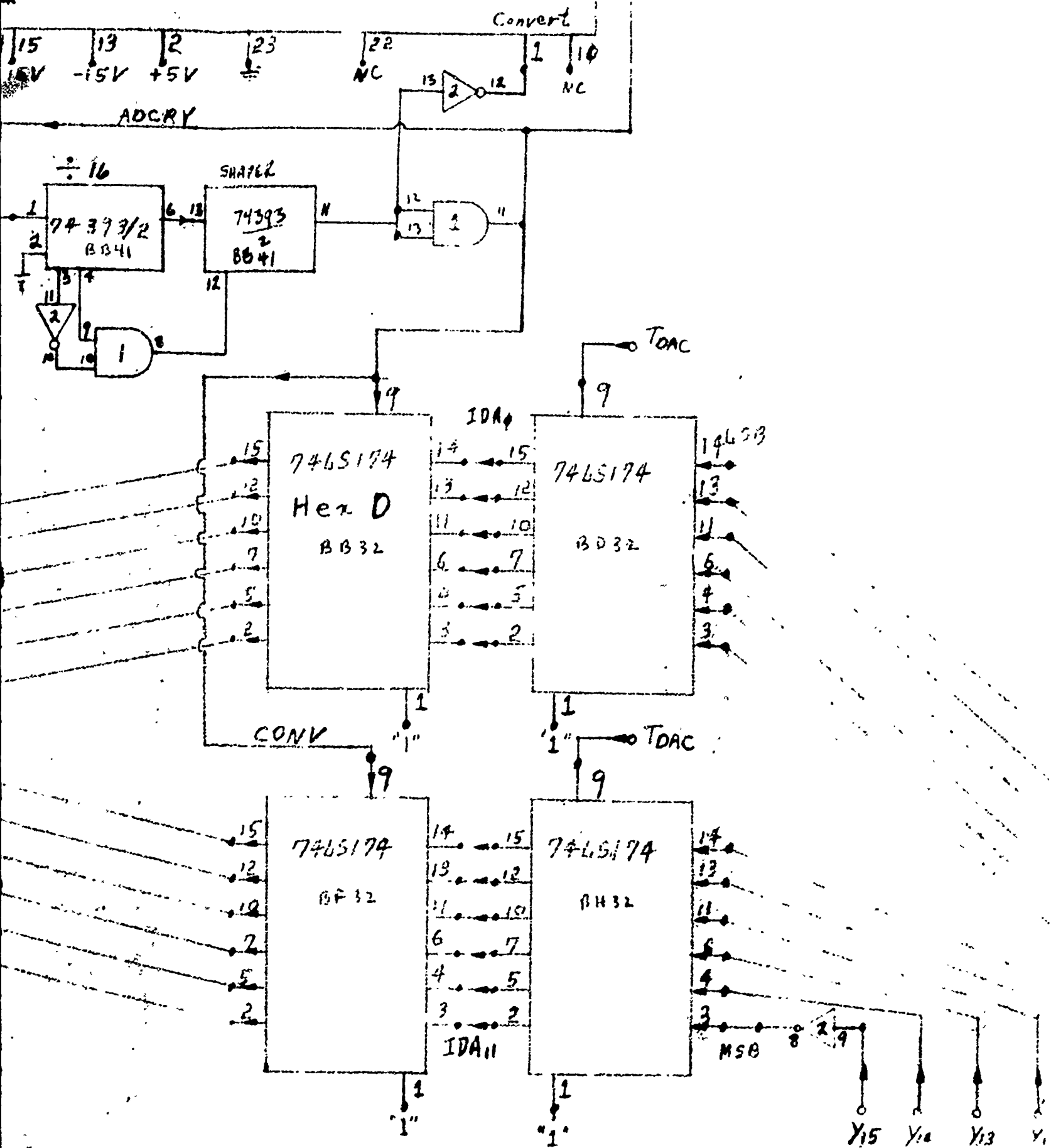
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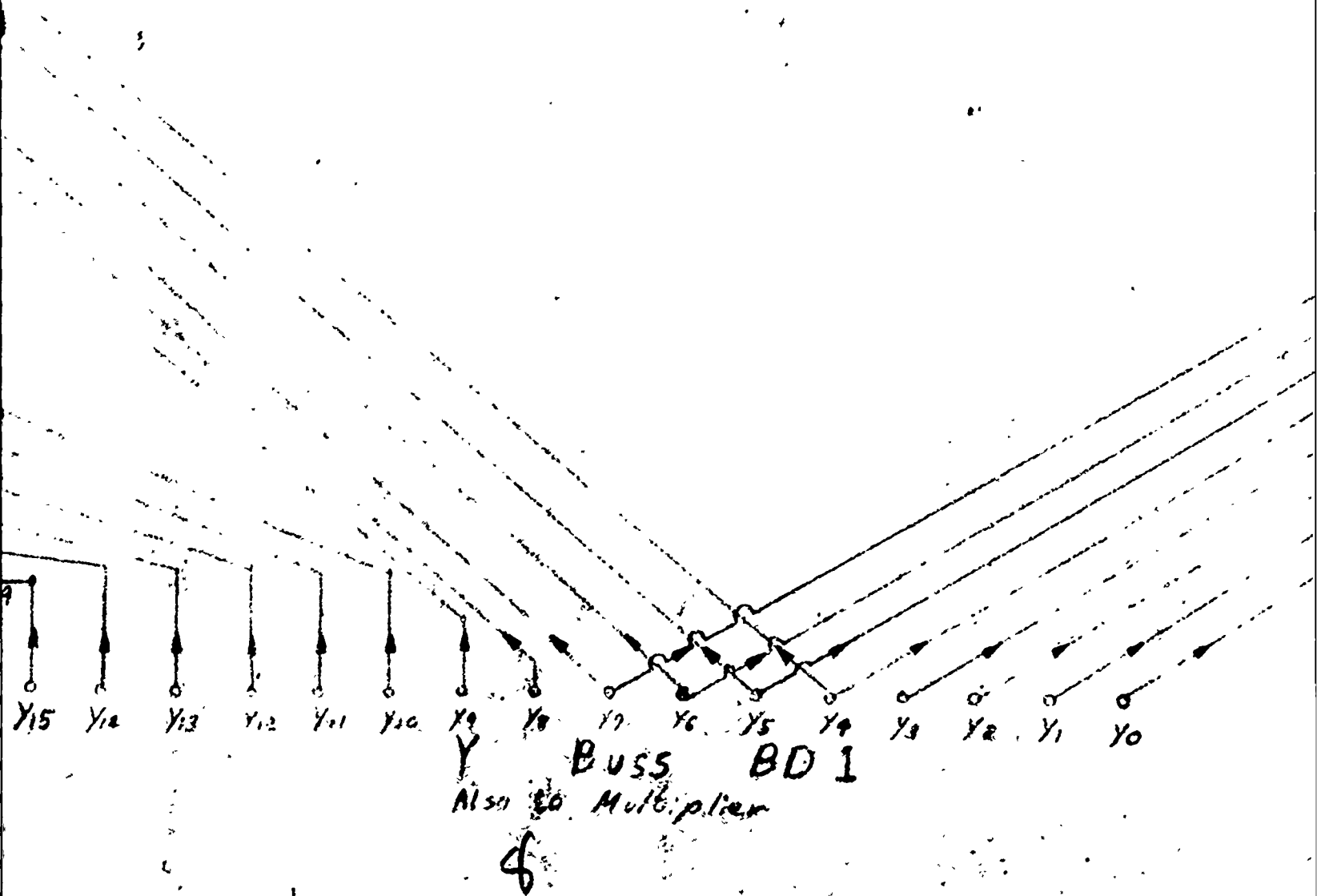


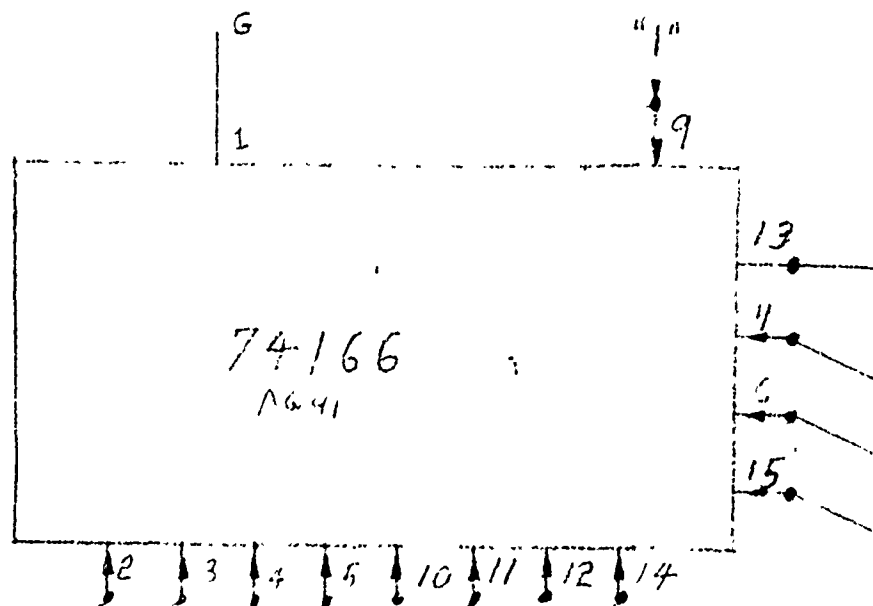
6

MN5202/ A/D
A123



7

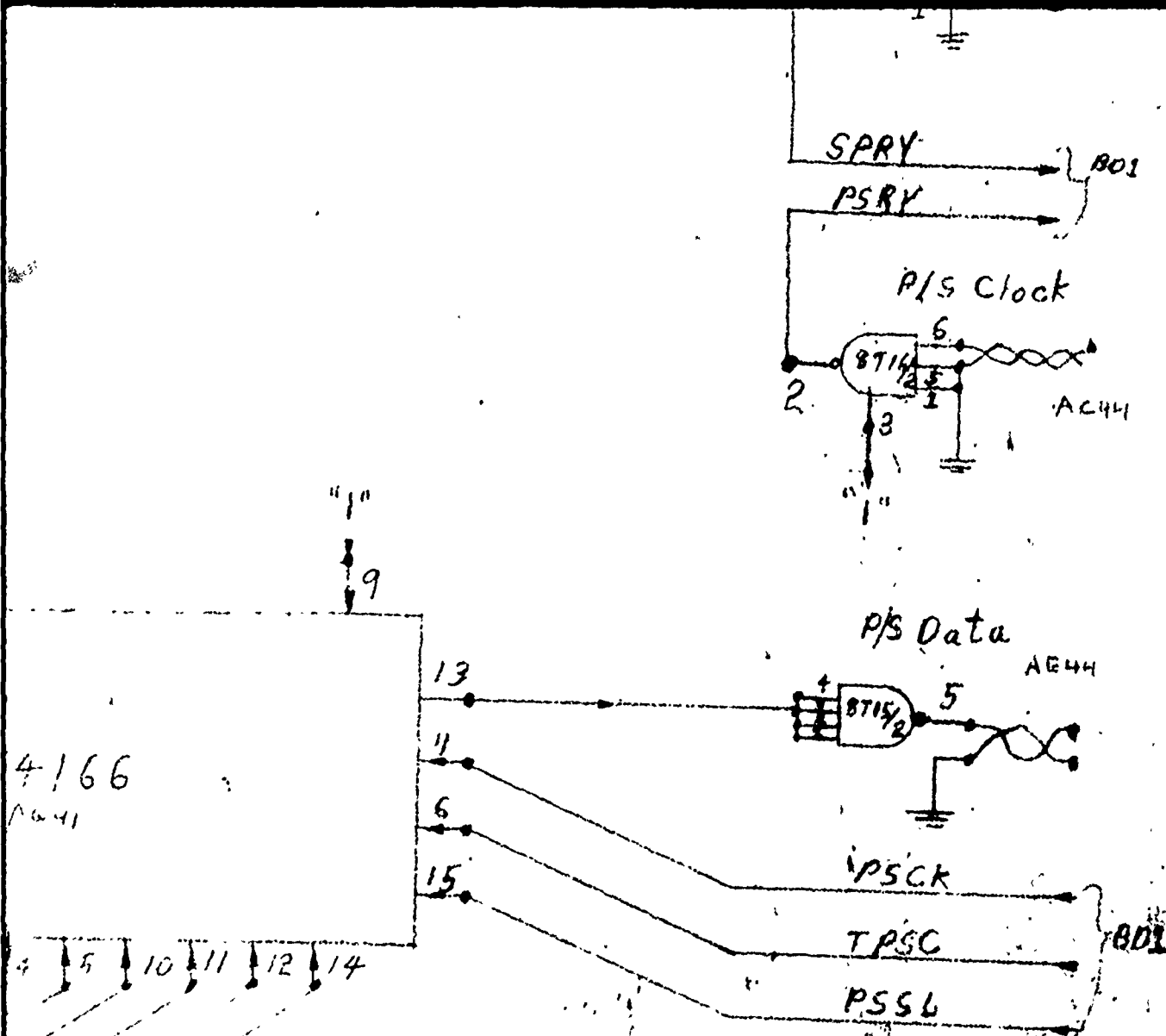




FST BD
4:1 D MUX
+
IO Circui

RIT 29 Jan 76

Updated March 29, 1976



FST BD 2
4:1 D MUX
+
IO Circuits

RIT 29 Jan 76

updated March 29, 1976

10/24/76

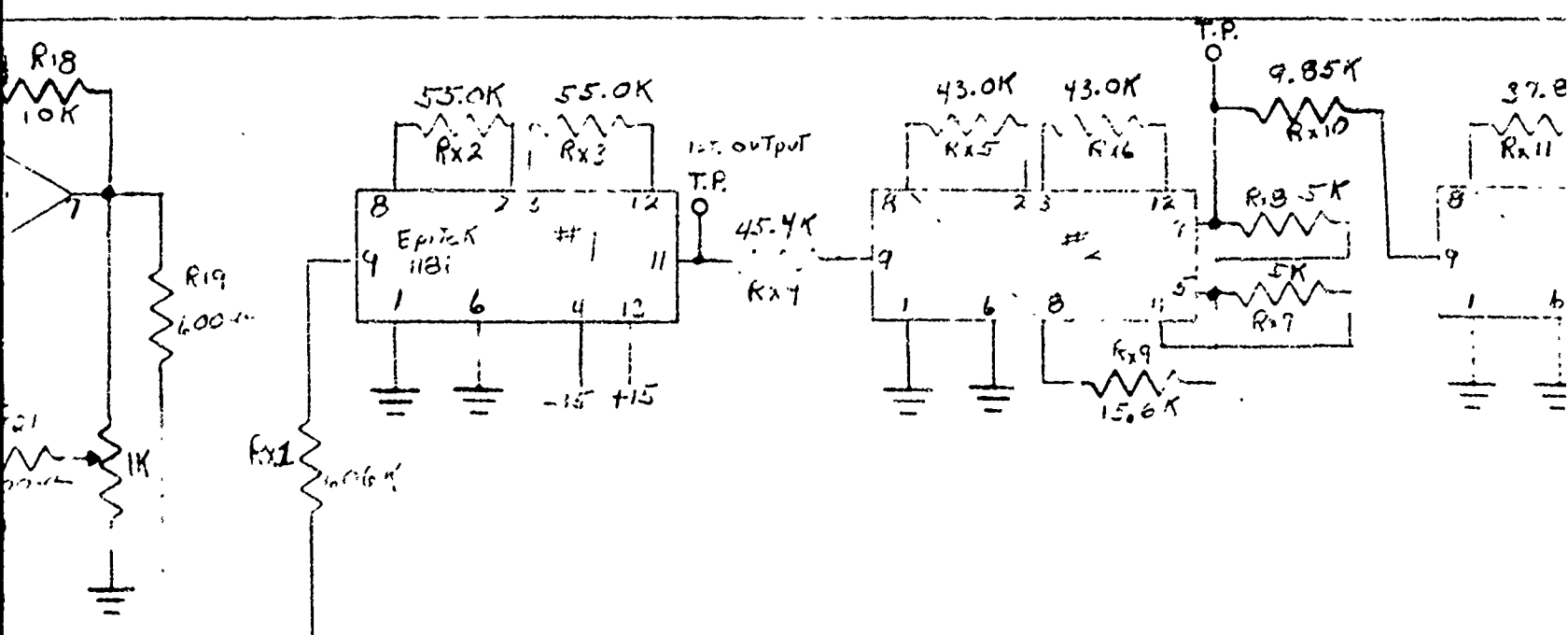
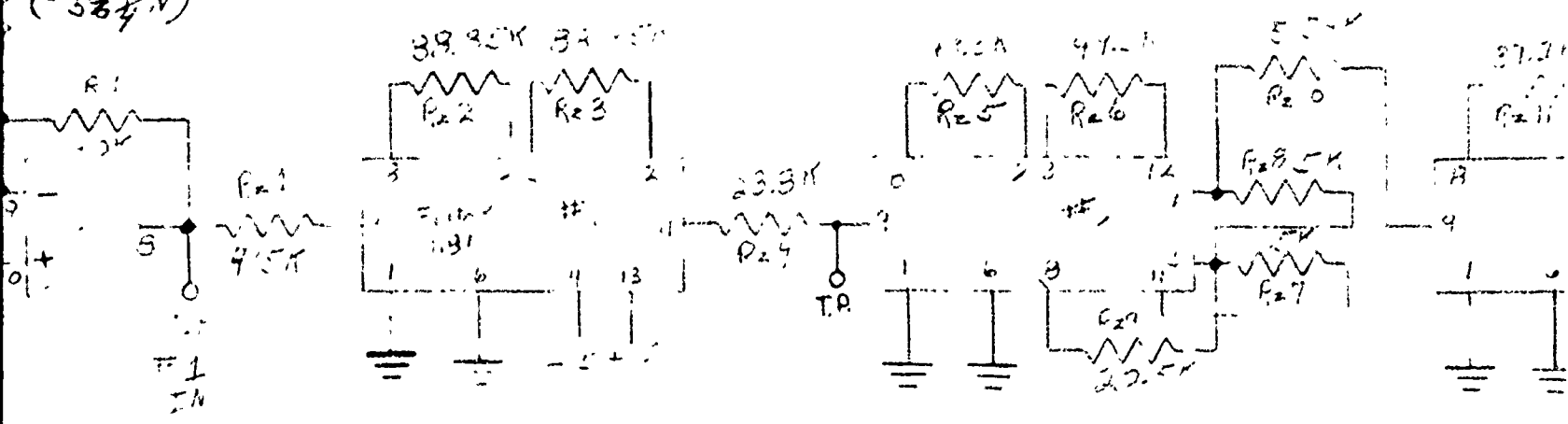
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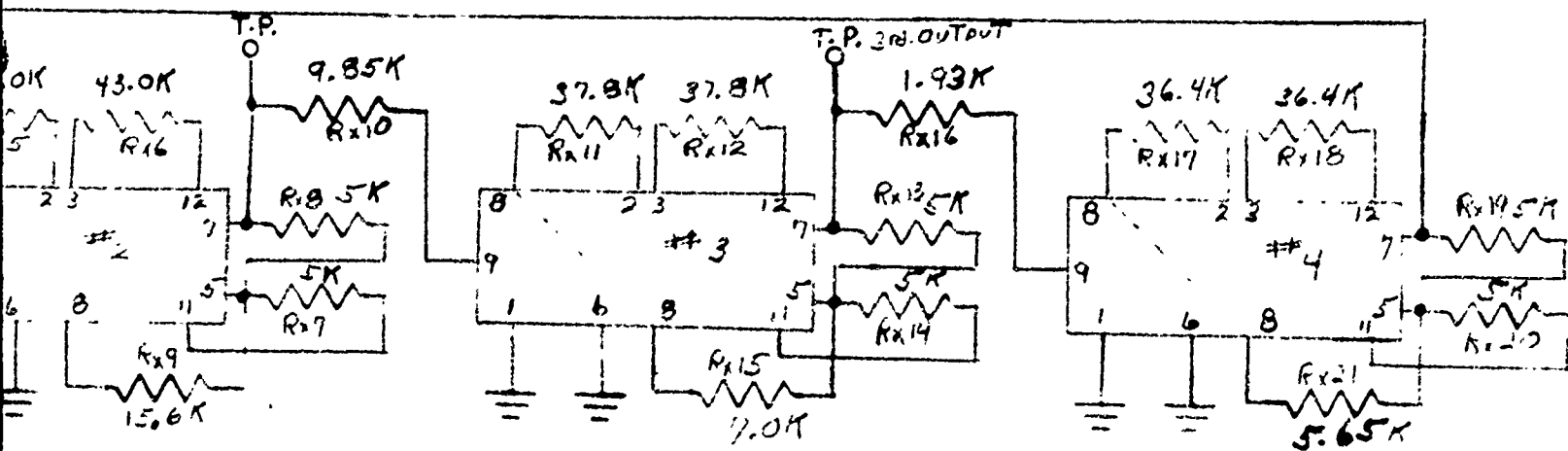
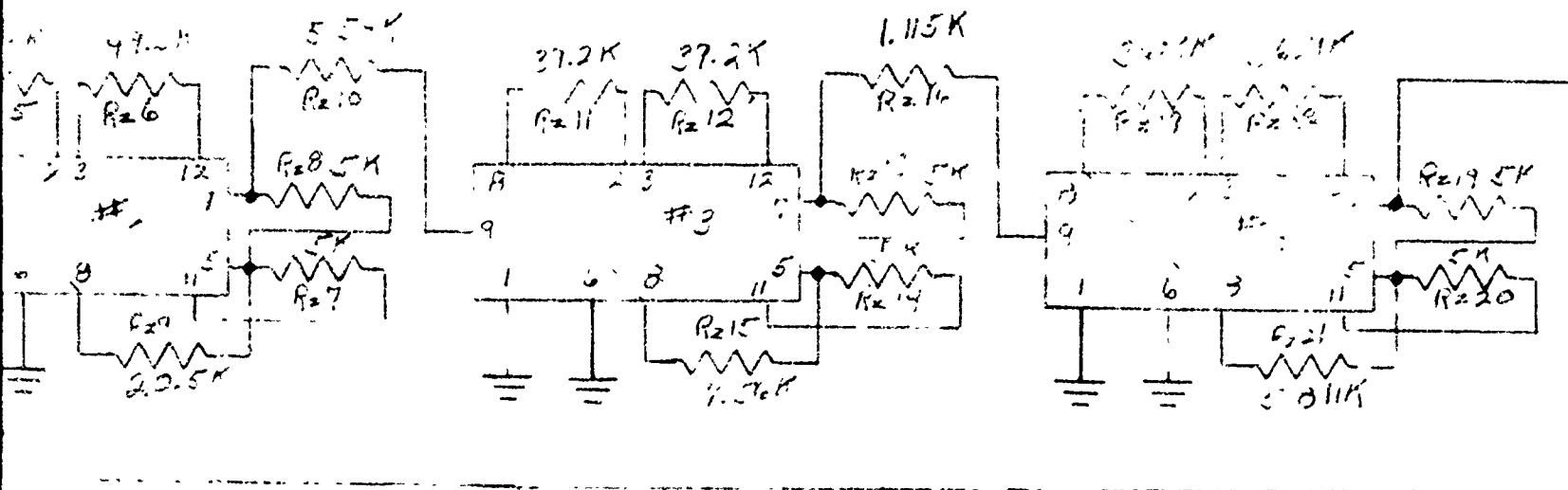
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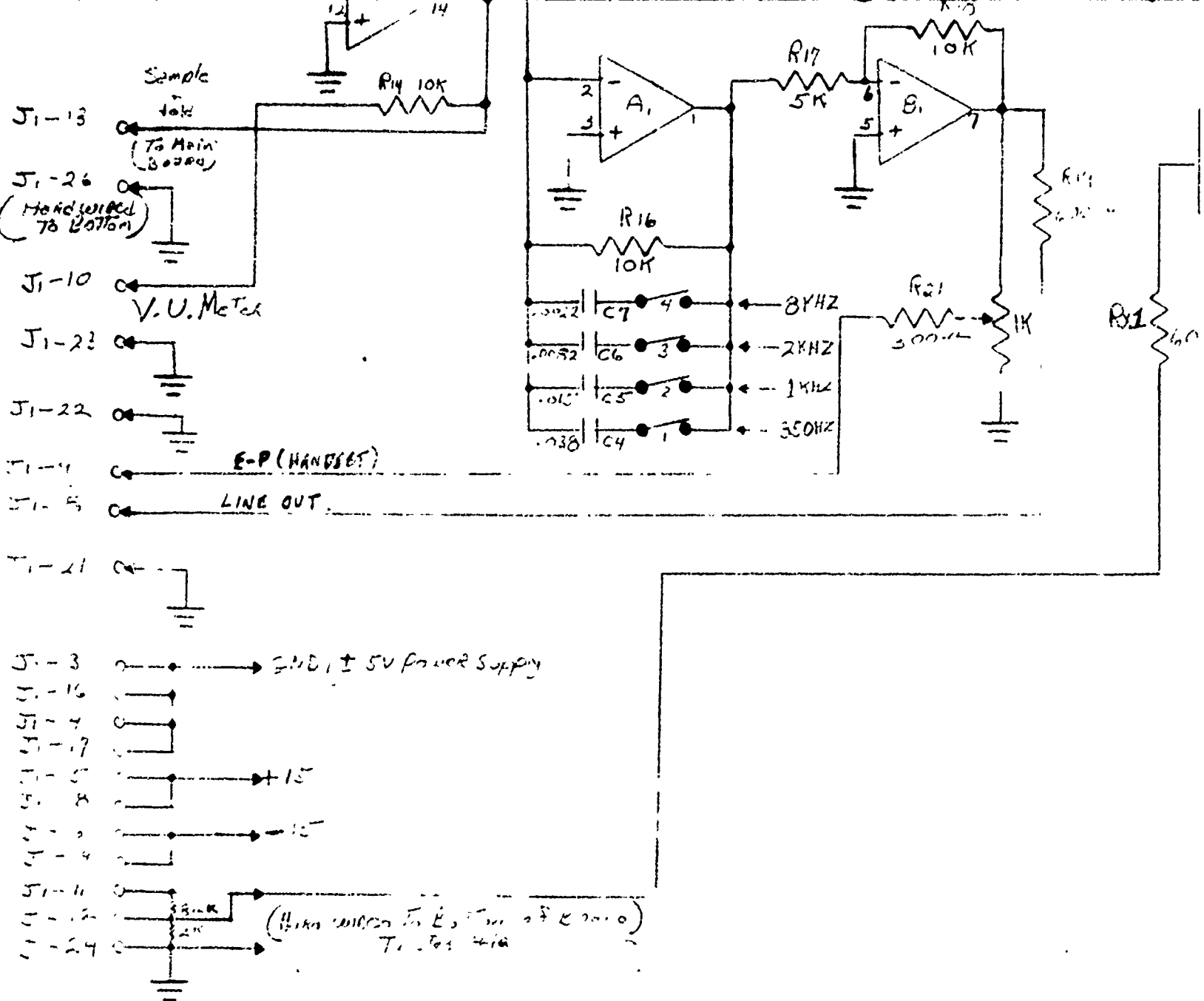
2

10
OK
+15

5.1V
(-58.4V)

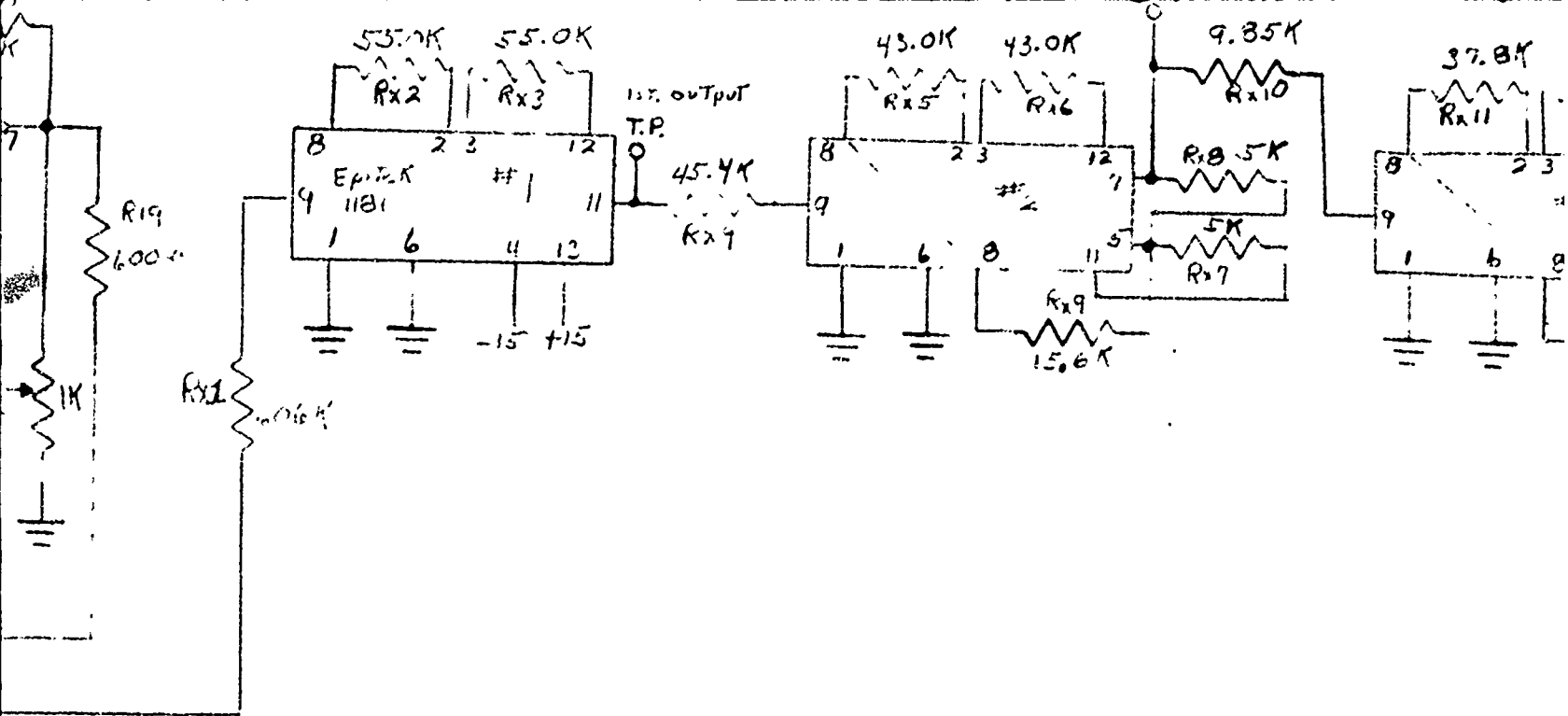




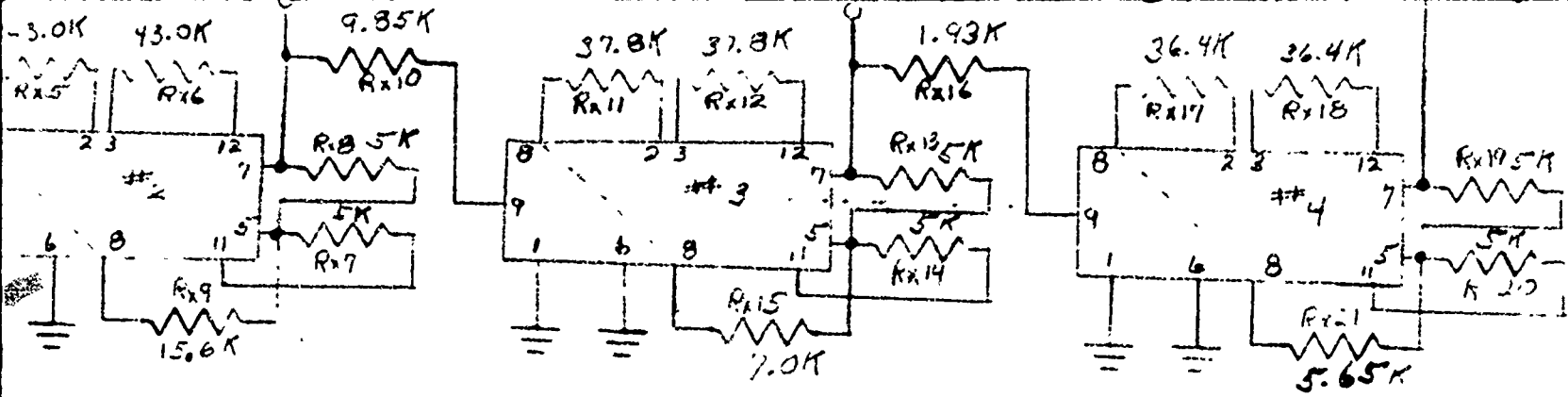


J₁
All Twisted Pair

BEST AVAILABLE COPY



LPCM AUDIO SCHEMATIC



TIC

BEST AVAILABLE COPY

6

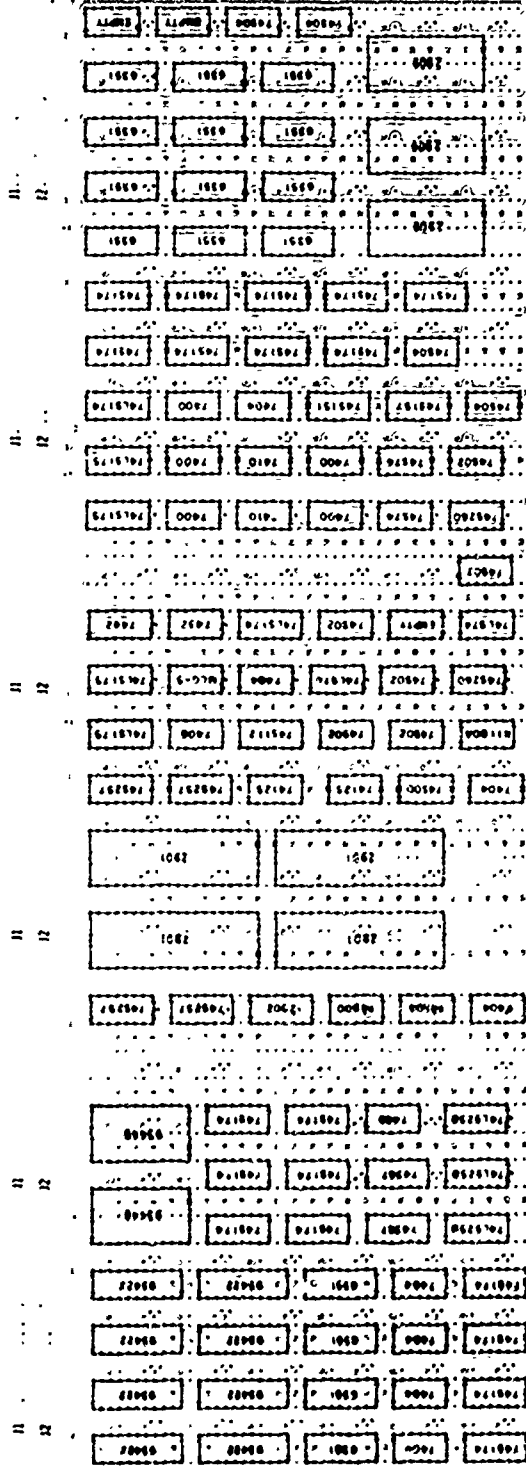
FB
1-16-77

8136-UG6 AND 8136-UG61 SERIES WORK SHEET -- COMPONENT SIDE

NOTE: For technical information on U Series Boards, request data sheet Class 006. Series U-Boards General / Sheet 1

DO NOT SCALE PRINT

7-11251



Digital Package Layout Board I

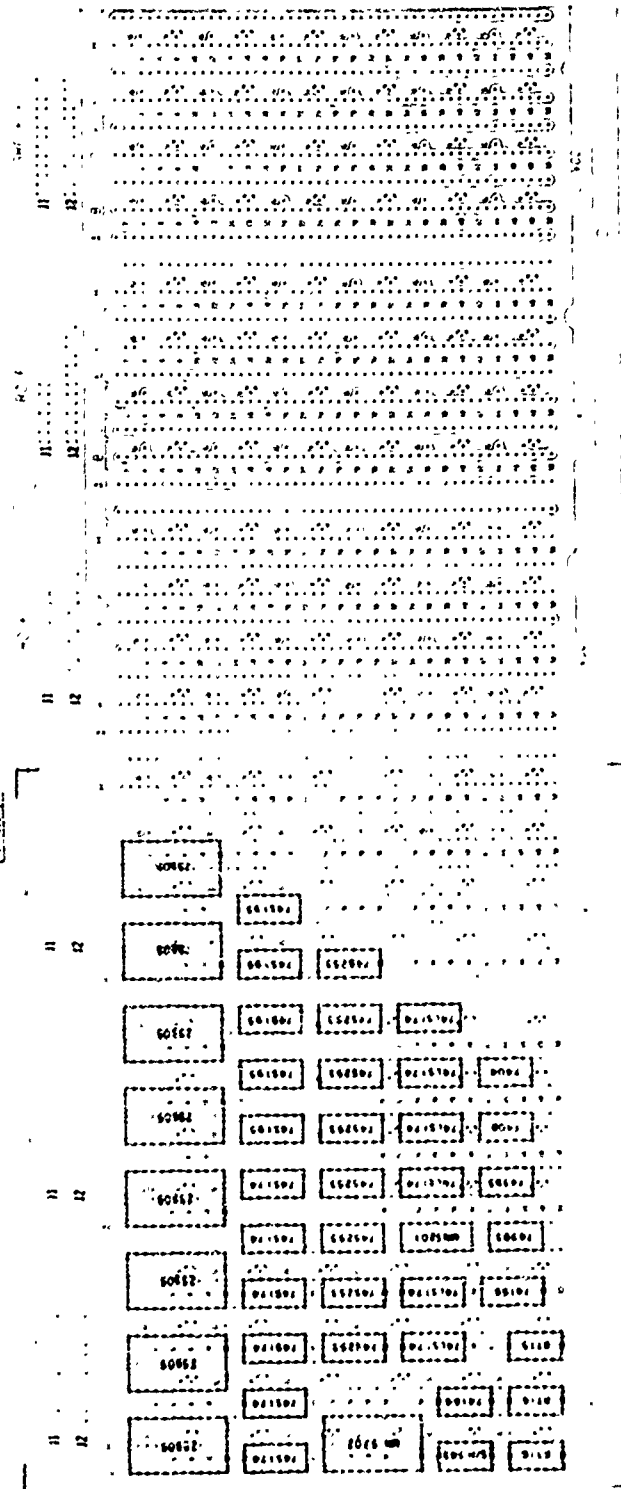
Copy

DO NOT WRITE IN THESE SPACES

8136-UG6 AND 8136-UG61 SERIES WORK SHEET -- COMPONENT SIDE

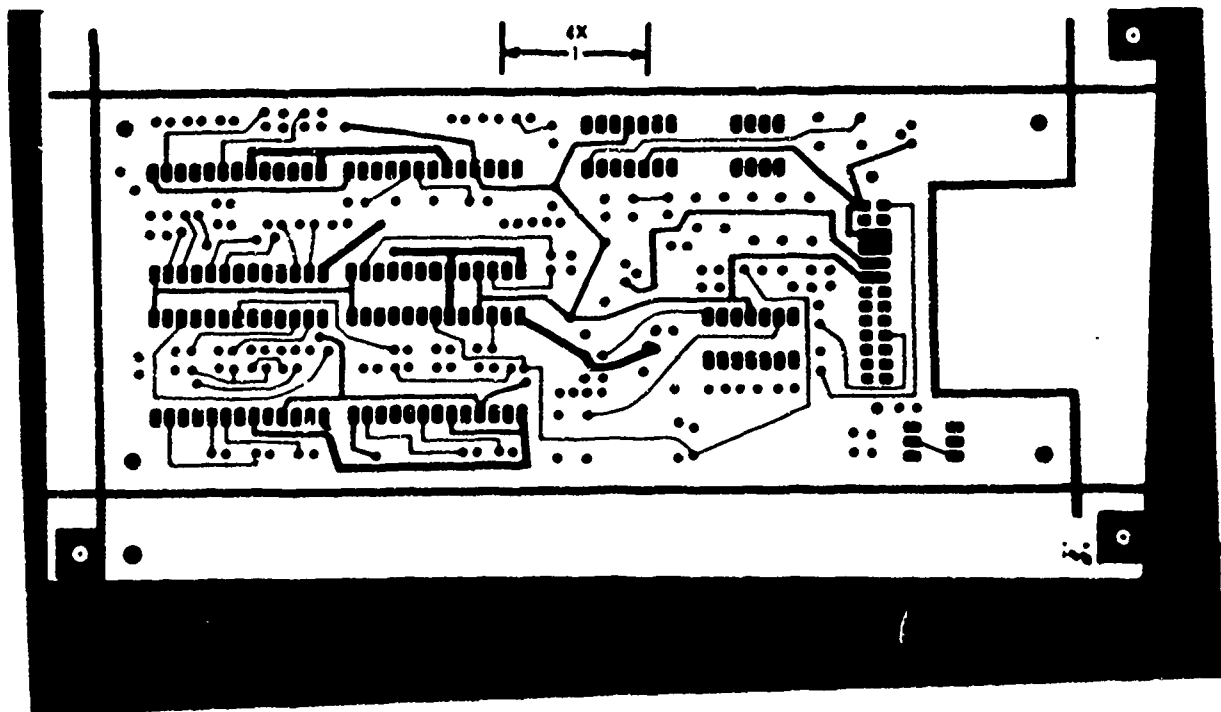
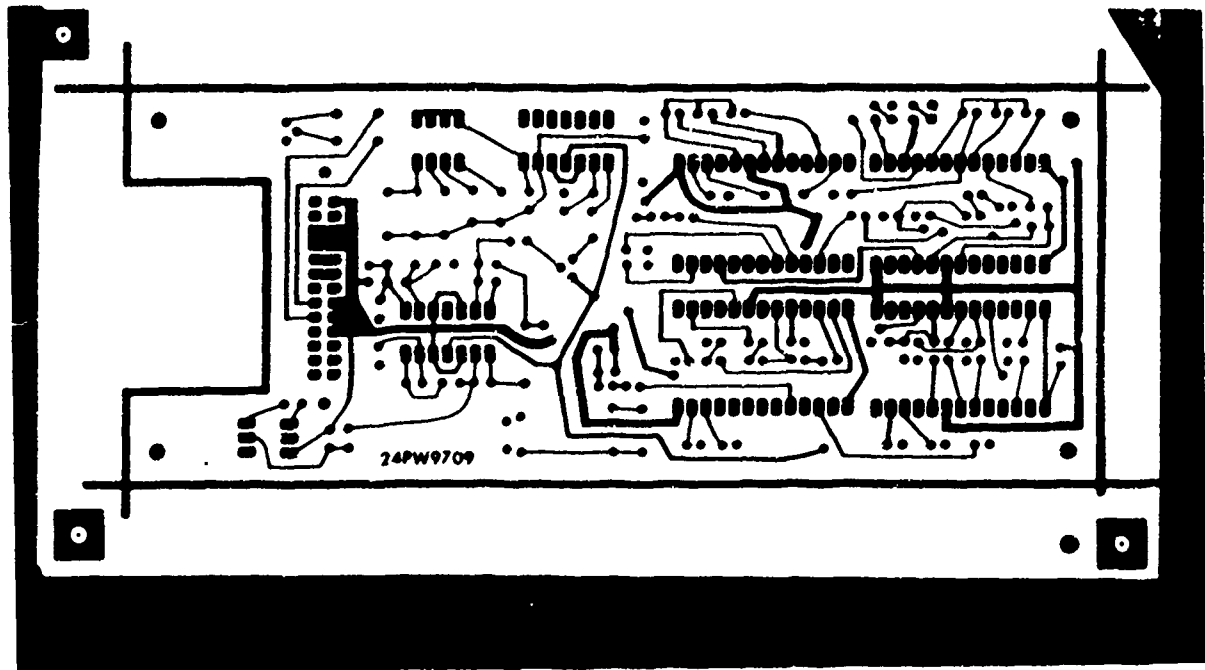
NOTE for technical information on U Series Boards request data sheet Class 105 / Series U-Boards General / Sheet 1

UNITED STATES GOVERNMENT PRINTING OFFICE: 1967

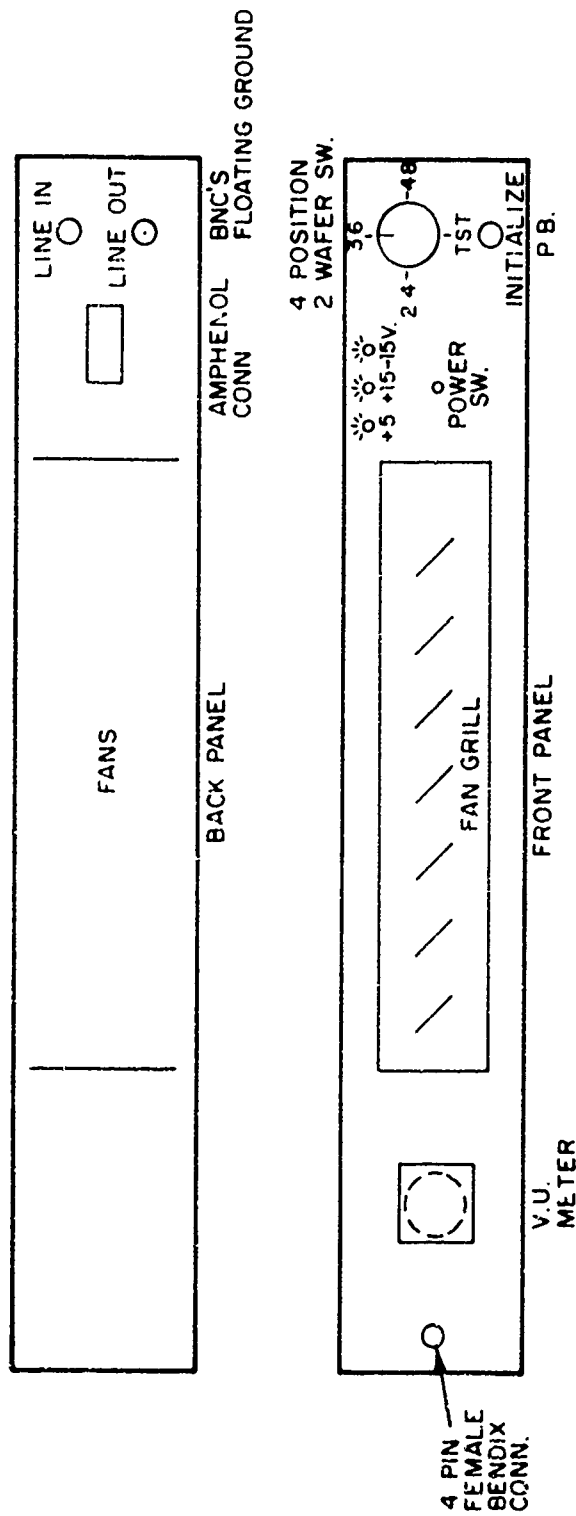


Digital Package Layout Board II

Audio Printed Circuit Layout



18-2-13255




Panel Layout

Cable List Board I and Board II

AJ1 I	TWISTED PAIRS		AJ2 II
0 14 0 1	Y0		0 1 0 14
0 15 0 2	Y2		0 2 0 15
0 16 0 3	Y4		0 3 0 16
0 17 0 4	Y6		0 4 0 17
0 18 0 5	Y8		0 5 0 18
0 19 0 6	Y10		0 6 0 19
0 20 0 7	Y12		0 7 0 20
0 21 0 8	Y14		0 8 0 21
0 22 0 9	SPRY		0 9 0 22
0 23 0 10	ADCRY		0 10 0 23
0 24 0 11			0 11 0 24
0 25 0 12	IC01		0 12 0 25
0 26 0 13	IC11		0 13 0 26

18-2-13256

Cable List Board I and Board II

AJ2 I		TWISTED PAIRS		AJ1 II	
C	0		Y1	0	0
14	1			1	14
0	0		Y3	0	0
15	2			2	15
0	0		Y5	0	0
16	3			3	16
0	0		Y7	0	0
17	4			4	17
0	0		Y9	0	0
18	5			5	18
0	0		Y11	0	0
19	6			6	19
0	0		Y13	0	0
20	7			7	20
0	0		Y15	0	0
21	8			8	21
0	0		PSRY	0	0
22	9			9	22
0	0			0	0
23	10			10	23
0	0			0	0
24	11			11	24
0	0		IC21	0	0
25	12			12	25
0	0		IC22	0	0
26	13			13	26

18-2-13257

Cable List Board I and Board II

BJ1 I	TWISTED PAIRS		BJ2 II
0 0 14 1	===== T7		0 0 1 14
0 0 15 2			MPCK 0 0 2 15
0 0 16 3			TMCD 0 0 3 16
0 0 17 4			TPSC 0 0 4 17
0 0 18 5			PSSL 0 0 5 18
0 0 19 6	•		D0 0 0 6 19
0 0 20 7			D2 0 0 7 20
0 0 21 8	•		D4 0 0 8 21
0 0 22 9			D6 0 0 9 22
0 0 23 10	•		D8 0 0 10 23
0 0 24 11			D10 0 0 11 24
0 0 25 12			D12 0 0 12 25
0 0 26 13			D14 0 0 13 26

18-2-13258

Cable List Board I and Board II

BJ2 I	TWISTED PAIRS		BJ1 II
0 14 1 MPCL		0 14 1
0 15 2			TDAC 0 15 2
0 16 3			MPSP 0 16 3
0 17 4			PSCK 0 17 4
0 18 5			0 18 5
0 19 6	•		D1 0 19 6
0 20 7			D3 0 20 7
0 21 8	•		D5 0 21 8
0 22 9			D7 0 22 9
0 23 10	•		D9 0 23 10
0 24 11			D11 0 24 11
0 25 12			D13 0 25 12
0 26 13			D15 0 26 13

18-2-13259

Cable List Chassis to Board I and II

FROM FRONT PANEL SWITCH V W

18-2-13260

2.4 0 0

3.6 0 1

4.8 1 0

TST 1 1

W	CJ ₁ -1	} BD I
W _G	CJ ₁ -14	
V	CJ ₁ -2	
V _G	CJ ₁ -15	
INIT	CJ ₁ -3	
INIT _G	CJ ₁ -16	

FROM AMPHENOL BACK PANEL CONNECTOR

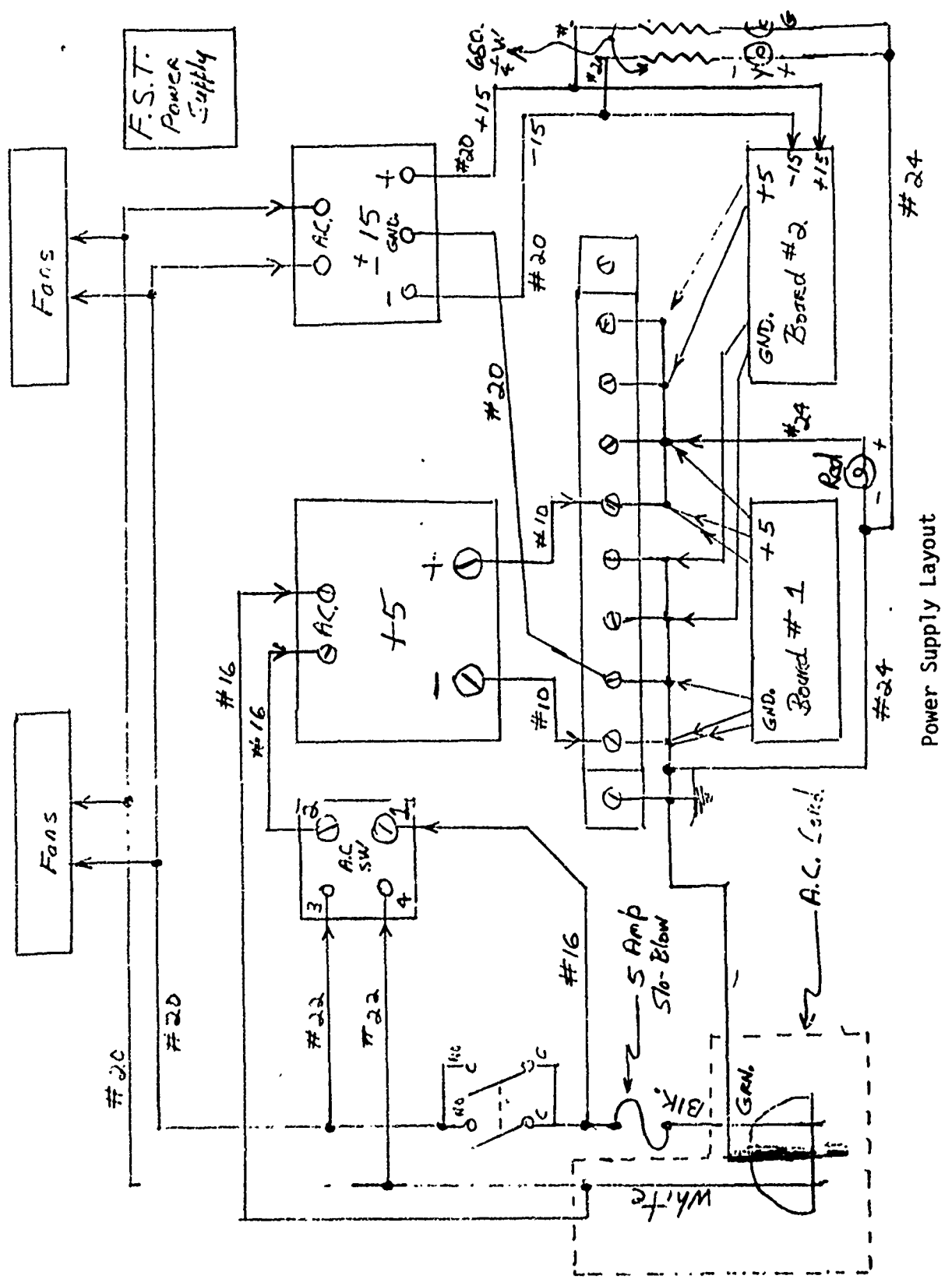
DIGITAL DATA IN	H	1	CJ ₂ -1	} BD II
	G	9	CJ ₂ -14	
CLOCK DATA IN	H	2	CJ ₂ -2	
	G	10	CJ ₂ -15	
DIGITAL DATA OUT	H	7	CJ ₂ -7	
	G	15	CJ ₂ -20	
CLOCK DATA OUT	H	6	CJ ₂ -6	
	G	14	CJ ₂ -19	

AUDIO CONNECTORS FRONT, AND REAR, AND AUDIO VOLTAGE

18-2-13261

+15 (from supply)	CJ ₁ -5, 18	BD II CJ ₁	AUDIO BOARD CONNECTOR	FROM AUDIO BD CONNECTOR	TO BD II CJ ₁
GROUND (from supply)	CJ ₁ -3, 4, 16, 17				
-15 (from supply)	CJ ₁ -6, 19				
BENDIX "A" (microphone)	DJ ₁ -1				
"g"	DJ ₁ -14				
BNC LINE INPUT +	DJ ₁ -2				
-	DJ ₁ -15				
BENDIX "C" + (earphone)	DJ ₁ -8				
"D" -	DJ ₁ -21				
BNC LINE OUTPUT +	DJ ₁ -9				
-	DJ ₁ -22				
VU METER +	DJ ₁ -10				
-	DJ ₁ -23				
+15 (from supply)	DJ ₁ -5, 18				
-15 (from supply)	DJ ₁ -6, 19				
GROUND (from supply)	DJ ₁ -3, 4, 16, 17				
				DJ ₁ -11	CJ ₁ -11
				DJ ₁ -24	CJ ₁ -24
				DJ ₁ -13	CJ ₁ -12
				DJ ₁ -26	CJ ₁ -25

Cable List Chassis to Board I and II



Power Supply Layout

Wire List (Punched Card Image) Board I

FILE: EDS

TAPRWLST A1 1/19/77 16:12

M.I.T. LINCOLN LABORATORY

	POWER	AND	GROUND	
1	DFV48		DFV48	DG43
1	DFG44		DFG44	DF49
1	AB25		AB25	ABV24
1	ABG36		ABG36	AA33
1	ABG36		ABG36	AC33
1	AF25		AF25	AFV24
1	AF33		AF33	ADG36
1	AH25		AH25	AHV24
1	AFG36		AFG36	AG33
1	AB36		AB36	ABV32
1	ABG44		ABG44	AA41
1	AD35		AD35	ADV32
1	ADG44		ADG44	AC41
1	AF35		AF35	AFV32
1	ADG44		ADG44	AE41
1	AH35		AH35	AHV32
1	AFG44		AFG44	AG41
1	AB43		AB43	ABV48
1	ABG44		ABG44	AA50
1	AD43		AD43	ADV48
1	ABG44		ABG44	AC50
1	AF43		AF43	AFV48
1	ADG44		ADG44	AE50
1	AF43		AH43	AHV40
1	AFG44		AFG44	AG50
1	BB01		BB01	BBV08
1	AJ12		AJ12	AHG12
1	BEC1		BEC1	BDV08
1	BC12		BC12	BBG12
1	BBV16		BBV16	EA14
1	AHG20		AHG20	AJ21
1	BBV16		BBV16	BC14
1	BB21		BB21	BBG20
1	BE14		BE14	BDV16
1	BD21		BD21	BDG20
1	BBV24		BBV24	BA23
1	AHG28		AHG28	AJ30
1	BBV24		BBV24	BC23
1	BB30		BB30	BBG28
1	BE23		BE23	BDV24
1	BD30		BD30	BDG28
1	BBV32		BBV32	BA32
1	AJ39		AJ39	AHG36
1	BBV32		BBV32	BC32
1	BB39		BB39	BBG36
1	BE32		BE32	BDV32
1	BD38		BD38	BDG36
1	BBV40		BBV40	BA41
1	AJ48		AJ48	AHG44
1	BBV40		BBV40	BC41
1	BB48		BB48	BBG44
1	BE41		BE41	BDV40
1	BD48		BD48	BDG44
1	ABC1		ABC1	ADV08

FILE: EDS

TAPFWLST A1 1/19/77 16:02

M.I.T. LINCOLN LABORATORY

1	ADC1	AD01	ADV08
1	ABG04	ABG04	AAC0
1	ABG04	ABG04	ACC0
1	AF01	AF01	AFV08
1	ADG04	ADG04	AE08
1	AHC1	AH01	AHV08
1	APG04	APG04	AGC0
1	AB13	AB13	ABV16
1	ABG20	ABG20	AA20
1	AD13	AD13	ADV16
1	ABG20	ABG20	AC20
1	AF13	AF13	AFV16
1	ADG20	ADG20	AE20
1	AH13	AH13	AHV16
1	APG20	APG20	AG20
1	BHV08	BHV08	BJ01
1	BHG04	BHG04	BH08
1	BHV08	BHV08	BJ10
1	BH17	BH17	BHG20
1	BJ19	BJ19	BHV16
1	BH26	BH26	BHG28
1	BJ28	BJ28	BHV24
1	BH34	BH34	BHG36
1	BHV40	BHV40	BJ30
1	BHG44	BHG44	BH42
1	BHV40	BHV40	BJ44
1	BHG44	BHG44	BH50
1	CA10	CA10	CBV08
1	CC11	CC11	CBG12
1	CD10	CD10	CDV08
1	CF11	CF11	CFG12
1	CA31	CA31	CBV32
1	CC32	CC32	CBG28
1	CD31	CD31	CDV32
1	CF32	CF32	CDG28
1	CHV08	CHV08	CH01
1	CFG04	CFG04	CG08
1	CHV08	CHV08	CH10
1	CFG20	CFG20	CG17
1	CH19	CH19	CHV16
1	CG25	CG25	CFG28
1	CH28	CH28	CHV32
1	CG34	CG34	CFG36
1	CH36	CH36	CHV40
1	CFG44	CFG44	CG42
1	CH44	CH44	CHV48
1	CFG44	CFG44	CG50
1	DDV08	DDV08	DD01
1	CJ08	CJ08	CHG04
1	DB08	DB08	DBG04
1	DDV08	DDV08	DE01
1	DDG04	DDG04	DD08
1	DBV08	DBV08	DA10
1	CJ16	CJ16	CHG12
1	DBV08	DBV08	DC10

FILE: EDS

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M.I.T. LINCOLN LABORATORY

1	DB16	DB16	DEG12
1	DDV28	DDV28	DE10
1	DBV16	DBV16	DA18
1	DD16	DD16	DDG12
1	CHG20	CHG20	CJ25
1	DBV16	DBV16	DC18
1	DBG20	DBG20	DE24
1	DE18	DE18	DDV16
1	DDG28	DDG28	DD25
1	DBV24	DBV24	DA27
1	CHG36	CHG36	CJ33
1	DBV24	DBV24	DC26
1	DBG36	DBG36	DB32
1	DE27	DE27	DDV24
1	DD32	DD32	DDG36
1	DA35	DA35	DBV32
1	CHG44	CHG44	CJ41
1	DC34	DC34	DDV32
1	DBG36	DBG36	DB40
1	DA43	DA43	DBV40
1	CHG44	CHG44	CJ49
1	DDV40	DDV40	DC42
1	DB48	DB48	DBG44
1	DDV40	DDV40	DE43
1	DD49	DD49	DDG44
1	DHVC8	DHVC8	DJC1
1	DHC8	DHC8	DHGC4
1	EBVC8	EBVC8	EB1
1	EAC8	EAC8	ERG24
1	EDVC8	EDVC8	ED1
1	ECC8	ECC8	FDGC4
1	EFVC8	EFVC8	EF1
1	EEC8	EEC8	FFGC4
1	EHVC8	EHVC8	EH1
1	EHGC4	EHGC4	EG08
1	DHVC8	DHVC8	DJ1
1	DH16	DH16	DHG12
1	EBVC8	EBVC8	EB1
1	FRG12	FRG12	EA16
1	EDVC8	EDVC8	ED1
1	EBG12	EBG12	IC16
1	EFVC8	EFVC8	EF1
1	EE17	EE17	FDG12
1	EHVC8	EHVC8	EH1
1	FG17	FG17	FFG20
1	DJ18	DJ18	DHV16
1	DH24	DH24	DHG20
1	EB18	EB18	EBV16
1	EBG20	EBG20	EA24
1	ED18	ED18	FDV16
1	ERG20	ERG20	EC24
1	EF19	EF19	EFV16
1	EE26	EE26	EDG28
1	EH19	EH19	EHV16
1	EG26	EG26	FFG28

FILE: EDS

TAPRWLSF A1 1/19/77 16:32

M.I.T. LINCOLN LABORATORY

1	DJ26	DJ26	PHV24			
1	OH32	DH31	DHG28			
1	ED26	FB26	ERV24			
1	EBG36	FRG36	EA32			
1	ED26	ED26	FDV24			
1	EHG36	EBG36	EC32			
1	EF28	EF28	EFV24			
1	EDG36	EDG36	FF35			
1	PHV24	EHV24	EH28			
1	EG35	EG35	EHG36			
1	DJ34	DJ34	DHV32			
1	DH40	DH40	DHG36			
1	PH34	EB34	EHV32			
2	EBG44	ERG44	EA40	EC50	EA48	FC42
1	ED35	ED35	EDV32			
1	EF37	EF37	EFV40			
1	EB43	EF43	EBG44			
1	PH37	PH37	EHV40			
1	EHG44	EHG44	EG44			
1	DJ42	DJ42	DHV40			
1	DH48	DH48	DHG44			
1	EB42	EB42	EPV40			
1	FDV08	FDV08	FEC1			
1	FDV08	FDV08	FF11			
1	ADV24	ADV24	AD25			
1	ED44	ED44	EDV48			
1	EHV08	EHV08	FAC1			
1	EHG04	EHG04	EJC9			
1	PHV08	PHV08	FCC1			
1	FB09	FB09	FBG04			
1	FD09	FD09	FDG04			
1	FFV08	FFV08	FGC1			
1	FF09	FF09	FFG04			
1	FBV16	FBV16	FA11			
1	EJ19	EJ19	FHG28			
1	FBV08	FBV08	FC11			
1	FB19	FB19	FBG28			
1	FD19	FD19	FDG28			
1	FFV08	FFV08	FG11			
1	FF19	FF19	FFG28			
1	EHV24	EHV24	FA21			
1	EJ29	EJ29	EHG28			
1	FC21	FC21	FDV24			
1	FB29	FB29	FBG28			
1	FE21	FE21	FDV24			
1	FD29	FD29	FDG28			
1	FG21	FG21	FFV24			
1	FF29	FF29	FFG28			
1	FB33	FB33	FBV32			
1	EHG44	EHG44	EJ46			
1	FE33	FE33	FDV32			
1	FBG44	FBG44	FC46			
1	PH33	PH33	PHV32			
1	FFG44	FFG44	FF46			
1	PJ17	PJ17	PHV16			

FILP: FDS

TAPPWLST A1

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M.I.T. LINCOLN LABORATORY

1	PH23	PH23	FHG24		
1	PJ25	PJ25	FHV24		
1	PHG28	PHG28	FH31		
1	DBV'8	DBV'8	DA'1		
	XOR TO 2:1 MUX				
1	MOB	BD24	CG11		
1	MOB1	BD27	CG14		
1	MOB2	BD29	CH15		
1	MOB3	BE29	CH17		
1	MOB4	BE27	CGC3		
1	MOB5	BE24	CGC5		
1	MOB6	BB24	CHC6		
1	MOB7	BB27	CHC3		
1	MOB8	BB29	HH11		
1	MOB9	BC29	HH14		
1	MOB10	BC27	HJ15		
1	MOB11	BC24	HJ12		
1	MOB12	AJ24	BHC2		
1	MOB13	AJ27	BH05		
1	MOB14	AJ29	BJC6		
1	MOB15	DA29	FJC3		
	HD OUTPUT TO MOR				
2	MO0	AG22	AG10	BC09	AH30
2	MO01	AH23	AH11	BC10	AH31
2	MO02	AH21	AH09	BC11	AH32
2	MO03	AH19	AH07	BE12	AH33
2	MO04	AE22	AE10	BE11	AF30
2	MO05	AF23	AF11	BE10	AF31
2	MO06	AF21	AF09	BF09	AF32
2	MO07	AF19	AF07	BE08	AF33
2	MO08	AC22	AC10	AJ09	AD30
2	MO09	AD23	AD11	AJ10	AD31
2	MO010	AD21	AD09	AJ11	AD32
2	MO011	AD19	AD07	BU12	AD33
2	MO012	AA22	AA10	BR11	AB30
2	MO013	AB23	AB11	BR10	AB31
2	MO014	AB21	AB09	BR09	AB32
2	MO015	AB19	AB07	BR08	AB33
	CLOCK FOR MOR				
2	T4	DA36	BA30	BC30	BE30
	ENABLES AND CLEARS				
2	AG38	AG28	BF06	BE06	BD23
2	AG38	AJ23			BE23
1	AFG36	AFG26	AG37		
1	AHG28	AHG28	AH29		
1	AF29	AF29	AFG28		
1	AD29	AD29	ADG28		
1	AB29	AB29	ABG28		
1	BE04	BE04	BDG04		
1	BB04	BB04	BDG04		
	MOR TO MD				
2	MBRO0	MD15	AG21	AG09	
2	MBRO1	BD18	AG23	AG11	
2	MBRO2	BD21	AH22	AH10	
2	MBRO3	BE29	AH20	AH08	

FILE: FDS

TAPRWLST A1 1/19/77 16:02

M.I.T. LINCOLN LABORATORY

2	MBRO4	BE18	AE21	AE09		
2	MBRO5	BE15	AE23	AE11		
2	MBRO6	BB15	AF22	AF10		
2	MBRO7	BB18	AF20	AF08		
2	MBRO8	BB20	AC21	AC09		
2	MBRO9	BC20	AC23	AC11		
2	MBRO10	BC18	AD22	AD10		
2	MBRO11	BC15	AD20	AD08		
2	MBRO12	AJ15	AA21	AA09		
2	MBRO13	AJ18	AA23	AA11		
2	MBRO14	AJ20	AB22	AB10		
2	MBRO15	BA20	AB20	AB08		
2	AG36	AG36	PD14	BE14	AJ14	AA43
2	AG36	AE43	AC43	AG43		
2	EMBR	DE28	EA21	BC21	BE21	
1	AFG36	AFG36	AG35			
	93422 OF BAR					
1	ANG20	ANG20	AH17			
1	AFG20	AFG20	AF17			
1	ADG20	ADG20	AD17			
1	ARG20	ARG20	AE17			
1	ABG04	ABG04	ABC5			
1	ADG04	ADG04	ADC5			
1	AFG04	AFG04	APC5			
1	AHC5	AHC5	AHG04			
	NO ADDRESS BITS 0 TO 7 LOWER ADDRESSES					
1	MDAL0	AE36	AG04			1
1	MDAL0	AG04	AEC4			2
1	MDAL0	AEC4	ACC4			3
1	MDAL0	ACC4	AAC4			4
1	MDAL0	AA04	AA16			5
1	MDAL0	AA16	AC16			6
1	MDAL0	AC16	AE16			7
1	MDAL0	AE16	AG16			8
1	MDAL0	AG16	AG04			9
1	MDAL1	AE38	AG03			1
1	MDAL1	AG03	AEC3			2
1	MDAL1	AE03	AC03			3
1	MDAL1	AC03	AAC3			4
1	MDAL1	AA03	AA15			5
1	MDAL1	AA15	AC15			6
1	MDAL1	AC15	AE15			7
1	MDAL1	AE15	AG15			8
1	MDAL1	AG15	AG01			9
1	MDAL2	AE40	AG02			1
1	MDAL2	AG02	AEC2			2
1	MDAL2	AEC2	ACC2			3
1	MDAL2	AC02	AAC2			4
1	MDAL2	AA02	AA14			5
1	MDAL2	AA14	AC14			6
1	MDAL2	AC14	AE14			7
1	MDAL2	AE14	AG14			8
1	MDAL2	AG14	AG02			9
1	MDAL3	AF01	AG01			1
1	MDAL3	AG01	AEC1			2

FILE: FDS

TAPRNLST R1

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M.I.T. LINCOLN LABORATORY

1	MDAL3	AE01	AC01
1	MDAL3	AC01	AA01
1	MDAL3	AA01	AA13
1	MDAL3	AA13	AC13
1	MDAL3	AC13	AF13
1	MDAL3	AE13	AG13
1	MDAL3	AG13	AG01
1	MDAL4	AF19	AA02
1	MDAL4	AA02	AF02
1	MDAL4	AF02	AD02
1	MDAL4	AD02	AB02
1	MDAL4	AB02	AB14
1	MDAL4	AB14	AD14
1	MDAL4	AD14	AE14
1	MDAL4	AE14	AA14
1	MDAL4	AA14	AF02
1	MDAL5	AF37	AG05
1	MDAL5	AG05	AE05
1	MDAL5	AE05	AC05
1	MDAL5	AC05	AA05
1	MDAL5	AA05	AA17
1	MDAL5	AA17	AC17
1	MDAL5	AC17	AE17
1	MDAL5	AE17	AG17
1	MDAL5	AG17	AG05
1	MDAL6	AD39	AG06
1	MDAL6	AG06	AE06
1	MDAL6	AE06	AC06
1	MDAL6	AC06	AA06
1	MDAL6	AA06	AA18
1	MDAL6	AA18	AC18
1	MDAL6	AC18	AE18
1	MDAL6	AE18	AG18
1	MDAL6	AG18	AG06
1	MDAL7	AD37	AG07
1	MDAL7	AG07	AE07
1	MDAL7	AE07	AC07
1	MDAL7	AC07	AA07
1	MDAL7	AA07	AA19
1	MDAL7	AA19	AC19
1	MDAL7	AC19	AE19
1	MDAL7	AE19	AG19
1	MDAL7	AG19	AG07
1	MD ADDRESS BITS : TO 7 UPPER ADDRESSES		
1	MDAU0	AA36	AG30
1	MDAU0	AG30	AE30
1	MDAU0	AE30	AC30
1	MDAU0	AC30	AA30
1	MDAU0	AA36	BCC8
1	MDAU0	BCC8	AJC8
1	MDAU1	AA38	AG31
1	MDAU1	AG31	AE31
1	MDAU1	AE31	AC31
1	MDAU1	AC31	AA31
1	MDAU1	AA38	BCC7

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FILE: EDS.

TAPFWLST A1

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N. I. T. LINCOLN LABORATORY

1	MDAU1	BC07	AJC7
1	MDAU2	AA40	AG32
1	MDAU2	AG32	AE32
1	MDAU2	AE32	AC32
1	MDAU2	AC32	AA32
1	MDAU2	AA40	BCC6
1	MDAU2	BC06	AJC6
1	MDAU3	AB41	AG29
1	MDAU3	AG29	AE29
1	MDAU3	AE29	AC29
1	MDAU3	AC29	AA29
1	MDAU3	AB41	BCC5
1	MDAU2	BC05	AJC5
1	MDAU4	AB39	AG28
1	MDAU4	AG28	AE28
1	MDAU4	AE28	AC28
1	MDAU4	AC28	AA28
1	MDAU4	AB39	BCC4
1	MDAU4	BC04	AJC4
1	MDAU5	AB37	AG27
1	MDAU5	AG27	AE27
1	MDAU5	AE27	AC27
1	MDAU5	AC27	AA27
1	MDAU5	AB37	BCC3
1	MDAU5	BC03	AJC3
1	MDAU6	AC36	AG26
1	MDAU6	AG26	AE26
1	MDAU6	AE26	AC26
1	MDAU6	AC26	AA26
1	MDAU6	AC36	BCC2
1	MDAU6	BC02	AJC2
1	MDAU7	AC38	AH27
1	MDAU7	AH27	AF27
1	MDAU7	AF27	AD27
1	MDAU7	AD27	AB27
1	MDAU7	AC38	BCC1
1	MDAU7	BC01	AJC1
1	MDAL8	BD44	AHC6
1	MDAL8	AHC6	AFC6
1	MDAL8	AFC6	ADC6
1	MDAL8	AD06	AB06
1	MDAL8	AG40	AH18
1	MDAL8	AH18	AF18
1	MDAL8	AF18	AD18
1	MDAL8	AD18	AB18
1	MDAL9	BD34	AHC4
1	MDAL9	AHC4	AFC4
1	MDAL9	AFC4	AD04
1	MDAL9	AD04	AB04
1	MDAL9	AB04	AB16
1	MDAL9	AB16	AD16
1	MDAL9	AD16	AF16
1	MDAL9	AF16	AH16
1	MDAL9	AH16	AHC4
1	MDALE	AG40	AH28

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FILE: EDS

TAPRVLST N1

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M. L. T. LINCOLN LABORATORY

1	CMDA1F	AH28	AF28
1	CMDA1F	AF28	AD28
1	CMDA1F	AD28	AB28
1	CMDA1F	AG47	BF42
1	CMDA1F	BE42	BEC2
1	MDA08	AC47	AG25
1	MDA08	AG25	AE25
1	MDA08	AE25	AC25
1	MDA08	AC25	AA25
1	MDA08	AC47	BEC7
1	MDA08	BE47	BEC7
1	MDA09	AD41	AH26
1	MDA09	AH26	AF26
1	MDA09	AF26	AD26
1	MDA09	AD26	AB26
1	MDA09	AD41	BEC5
1	MDA09	BEC5	BEC5
2	CMDA0	AJ44	AA25
2	CMDA1	AJ47	AA37
2	CMDA2	DA48	AA39
2	CMDA3	BA45	AB47
2	CMDA4	BB44	AB38
2	CMDA5	BB47	AB36
2	CMDA6	BC48	AC35
2	CMDA7	BC45	AC37
1	MDA18	BD44	AG39
2	CMDA9	BD47	AC39
2	CMDA10	BE48	AD47
1	CMDA0	AJ34	AE35
1	CMDA1	AJ36	AE37
1	CMDA2	AJ38	AE39
1	CMDA3	BA39	AF47
1	CMDA4	BA35	AF38
1	CMDA5	BA37	AF36
1	CMDA6	BC35	AD38
1	CMDA7	BC37	AD36
1	MDA18	BB34	AG39
1	CMDA9	BB36	BD32
1	CMDA10	BB38	BD33
1	MAR00	AA44	AJ42
1	MAR01	AA47	AJ45
1	MAR02	AA49	BA46
1	MAR03	AB49	BA43
1	MAR04	AB47	BB42
1	MAR05	AB44	BR45
1	MAR06	AC44	BC46
1	MAR07	AC47	BC43
1	MAR08	AC49	BD42
1	MAR09	AD49	BD45
1	MAR010	AD47	BE46
1	MAR10	AE44	AJ43
1	MAR11	AF47	AJ46
1	MAR12	AE49	EA47
1	MAR13	AF49	BA44
1	MAR14	AF47	BB43

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AE36
AD38
AD36
BC32
BF33

FILE: EDS

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M.I.T. LINCOLN LABORATORY

1	MAR15	AF44	BB46			
1	MAR16	AG44	BC47			
1	MAR17	AG47	BC44			
1	MAR18	AG49	BD43			
1	MAR19	AH49	BD46			
1	MAR110	AH47	BE47			
2	TYAPC	DB47	AB51	AD51		
2	TYAR1	DB46	AH51	AF50		
2	TH37	AH37	BA42	BC42	BE42	
1	CFG20	CFG20	CF22			
1	CBG20	CBG20	CC22			
1	CFG14	CFG14	CFC1			
1	CBG14	CBG14	CC01			
1	BH28	BH28	CC08			
2	SCY	EE32	PH29	BH38		
1	BH31	BH31	BH30			
2	BHG04	BHG04	BH03	BH06	BJ07	BJ04
1	BHG12	BHG12	BJ13			
1	F	EG29	CG12			
1	F1	EG32	CG15			
1	F2	EG34	CH16			
1	F3	EH34	CH13			
1	F4	EH32	CG03			
1	F5	EH29	CG06			
1	F6	EG38	CH07			
1	F7	EG41	CH04			
1	F8	EG43	BH12			
1	F9	EH43	BH15			
1	F10	EH41	BJ16			
2	IC0	EF11	CG10	CG01	BH10	BH01
1	IC2	EG05	BH46			
2	CIC2	BH47	BJ02	BJ11	CH02	CH11
1	D1	CG13	CF37			
1	D1	CG16	CF38			
1	D2	CH17	CF39			
1	D3	CH14	CF40			
1	D4	CG04	CC37			
1	D5	CG07	CC38			
1	D6	CH08	CC39			
1	D7	CH05	CC40			
1	D8	BH13	CF16			
1	D9	BH16	CF17			
1	D10	BJ17	CF18			
1	D11	BJ14	CF19			
1	D12	BH04	CC16			
1	D13	BH07	CC17			
1	D14	BJ08	CC18			
1	D15	BJ15	CC19			
2	FE00	CD32	CA32	CD11	CA11	EA35
2	T5	DE27	CA15	CD15	CA36	CD36
2	TS0	EH02	CD33	CA33	CD12	CA12
2	TS1	EF02	CD34	CA34	CD13	CA13
2	TS2	EF05	CD35	CA35	CD14	CA14
2	IO0	EE07	CF36	CC36	CF15	CC15
2	IO1	EF17	CF34	CC34	CF13	CC13

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M.I.T. LINCOLN LABORATORY

2	FD2	EF05	CF35	CC35	CF14	CC14
2	ID0	EG07	CF26	CA26	CD05	CA05
2	ID1	EH07	CD28	CA28	CD07	CA07
2	ID2	EH05	CD27	CA27	CD06	CA06
2	A0	EF23	CD25	CA25	CD04	CA04
2	A1	EF20	CF24	CA24	CD03	CA03
2	A2	EE11	CD23	CA23	CD02	CA02
2	A3	EF14	CD22	CA22	CD01	CA01
2	B0	FH23	CD38	CA38	CD17	CA17
2	B1	EH20	CD39	CA39	CD18	CA18
2	B2	EE20	CD40	CA40	CD19	CA19
2	B3	FE23	CD41	CA41	CD20	CA20

SHIFT LOGIC

1	CD29	CD29	CA30			
1	CA29	CA29	CD09			
1	CD08	CD08	CA09			
1	CA08	CA08	CG21			
1	CG20	CG20	CC10			
1	ID1	CG19	CA07			
1	CD37	CD37	CC41			
1	CA37	CA37	CF20			
1	CD16	CD16	CC20			
2	CA16	CA16	CG29	CG33		
1	CHG28	CHG28	CH30			
1	CHG28	CH30	CH33			
2	CG30	CG30	CG32	CD30	CH31	
1	CH34	CH34	CF41			
1	BE38	BE38	CG28			
2	CH29	CH29	BD37	BE37		
1	ID1	CA28	BD36			
1	ID1	BD36	CG31			
1	ID1	CG31	BE36			
1	ID1	DE36	BH44			
1	BH45	BH45	CH32			
1	ID0	CA26	BD35			
1	BH32	BH32	CG38			
1	BH33	BH33	BA26			
2	BA27	BA27	BJ32	CG36		
1	BH39	BH39	CG37			
2	BCY	EE29	BH36	BJ33		
1	BH37	BH37	CG39			
1	EF02	EF02	CG40			
1	BJ34	BJ34	BJ29			
1	BJ30	BJ30	CG41			
2	BJ31	BJ31	CF33	BJ22		
1	BJ26	BJ26	CC12			
1	BJ24	BJ24	CF12			
1	BJ23	BJ23	CC33			
1	GC	CF30	BH21			
1	CP0	CF27	BH22			
1	G1	CC30	BH19			
1	CP1	CC27	BH20			
1	G2	CF09	BJ21			
1	CP2	CF06	BJ20			
1	YC	CF26	BD16			

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M.I.T. LINCOLN LABORATORY

2	Y1	CF26	LH48	AF45	AA45	
1	Y1	CF25	BD17			
2	Y1	CF25	BJ49	AF46	AA46	
1	Y2	CF24	ED10			
2	Y2	CF24	BJ47	AE48	AA48	
1	Y3	CF23	BE19			
2	Y3	CF23	DJ45	AF48	AB48	
1	Y4	CC26	FE17			
2	Y4	CC26	CG44	AF46	AB46	
1	Y5	CC25	BE16			
1	Y5	CC25	CG46			
1	Y5	CC25	AF45			
1	Y5	AF45	AB45			
1	Y6	CC24	BB16			
1	Y6	CC24	CG48			
1	Y6	CC24	AG45			
1	Y6	AG45	AC45			
1	Y7	CC23	BE17			
1	Y7	CC23	CH49			
1	Y7	CC23	AG46			
1	Y7	AG46	AC46			
2	Y8	CF05	DB10	AG48	AC48	
1	Y8	CF05	CH47			
2	Y9	CF04	BC19	AH48	AD48	
1	Y9	CF04	CH45			
2	Y10	CF03	BC17	AH46	AD46	AH40
2	Y11	CF02	AH38	BC16		
1	Y12	CC05	AJ16			
1	Y12	CC05	DH40			
1	Y13	CC04	BJ41			
1	Y13	CC04	AJ17			
1	Y14	CC03	BJ39			
1	Y14	CC03	AJ19			
1	Y15	CC02	BJ37			
1	Y15	CC02	DA19			
2	WP	DC24	AH15	AF15	AD15	AB15
2	WP	AH03	AF03	AD03	AB03	
INTERRUPT AND BRANCH LOGIC						
1	DH12	DH12	ED11			
2	EC02	EC02	EA04	EC11		
1	EBG20	EBG20	EC20			
2	HT	EC21	EC01	EA01	DJ38	DH34
2	HT	DH37	DH01			
1	EA03	EA03	EC10			
2	EC12	EC12	EC13	EC18		
1	EC15	EC15	EA05			
1	ED16	ED16	EC14			
2	EC05	EC05	TBC05	ED11		
1	EB06	EB06	ED12			
1	ED13	ED13	EA10			
1	EA12	EA12	EB04			
1	EA15	EA15	FA11			
2	EC07	EC07	DH04	EB14		
1	DH03	DH03	EB15			
1	EB16	EB16	EB12			

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M.I.T. LINCOLN LABORATORY

1	EB13	EB13	FDC6			
2	T2	DA39	DJ37	DH36		
1	T3	DA39	DJ68			
1	T1	DJ 8	ED08			
1	T2	DJ08	DA08			
1	T3	EB08	ED08			
2	PSINT	EA07	ED15	DJ12		
2	SPINT	EB 2	FA13	EA26		
2	ADCI N1	ED07	DH10	EA29		
1	PSCLP	ER20	ED14			
1	SPCLP	EA23	FA14			
1	ADCCLP	EB24	DH11			
2	TA26	EA06	DH13	DJ15		
1	EB03	EB03	DH14			
1	SPINT	EB02	DJ14			
2	TV 1	DH15	EE39	FF36		
2	IV0	DJ16	EE41	FF37		
2	P1	FH42	EA18	EA21	ED21	
2	P0	FH00	EA19	ED19	ED23	
2	P1	ED	FB19	EA22	EB22	
1	ED21	ED21	EA20			
1	ED22	ED22	EB21			
2	CHLD	DH06	EA30	EA27	DJ11	
1	DJ13	DJ13	DH18			
1	EA28	EA28	DH19			
1	EA31	EA31	DJ19			
1	DJ20	DJ20	DH20			
1	DH23	DH23	DH35			
1	DH38	DH38	EA43			
2	INT	EA42	DJ23	DJ22		
2	INT	EC37	ED41	EC40		
2	CINT	DJ24	ED23	DH21	DH22	DH30
1	ED05	ED05	EB28			
2	EB32	EB32	ED04	EA44		
1	EB29	EB29	EB31			
1	STL	EE34	EC44			
1	EC45	EC45	LB30			
1	RIL	EF34	EC46			
2	EC47	EC47	DH27	EB27	DJ35	
2	HLO	DH07	DJ36	DH26		
1	DH28	DH28	DH29			
1	DH31	DH31	DH05			
2	SWHAR	DJ39	BD41	BB41	AJ41	DB19
2	SWHAR	DC45	DC45			
2	S	EG20	ED40	EA06		
2	R	EP29	EA47	DF05		
1	EA45	EA45	FB48			
2	JP2	EG25	ED33	DH42	DH43	
2	JP1	EG25	ED32	DH44		
2	JP0	EG23	ED31	DJ44	DJ43	
2	DH46	DH46	EC35	DJ21		
1	EDG36	EC32	EC33			
1	EDG36	EDG36	ED36			
2	TTST	DC38	EA36	EB37		
1	Y15	CC02	LB36			

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M.I.T. LINCOLN LABORATORY

1	DF43	DF43	FC36			
1	FA38	EA38	EC26			
1	EB39	EB39	ED27			
1	FA39	EA39	ED28			
1	EB40	EB40	EC27			
1	EC29	EC29	EBG28			
2	ED46	ED46	EC28	EA37	EA34	
2	ED46	EB38	EB35			
1	EDG44	EDG44	ED45			
2	CJPSAT	EC31	EB47	DF44		
2	S1	EC37	FE37	FB44	FE44	FI44
2	S2	EC38	EF42	FB45	FE45	FI45
1	FET	EC41	EF41			
1	EB46	EB46	EC39			
2	CPE	EF41	FB36	FE36	FI36	
2	P2	ED42	EF38	FB35	FE35	FI35
	TIMING GENERATION					
2	DC15	DC15	DB27	DB26	DC27	
2	DB35	DB35	DC28	CJ11		
1	DC32	DC32	CJ10			
2	DC31	DC31	CJ04	CJ13		
1	CJ02	CJ02	CJ05			
1	CJ06	CJ06	CJ14			
1	CJ15	CJ15	DE15			
1	DE16	DE16	DB20			
2	PCIR	DB21	FB46	FE46	FI46	
1	DBG20	DBG20	DC19			
2	DC20	CJ21	DA19	DA24		
2	DC20	DC20	DB29	DC30		
1	DBV16	DBV16	DC14			
2	DC20	DD43	DD46	DD18		
2	CLOCK	DA49	DB28	DC29	CJ18	DA21
2	CJ12	CJ12	DC21	DD10		
1	DD12	DD12	CJ20			
2	DC22	DC22	CJ01	DA20		
2	CJ22	CJ22	DA23	DA22		
1	TCE3	DA31	EB45			
1	EBG44	EBG44	EB44			
1	DA25	DA25	DA15			
1	DA16	DA16	CJ19			
1	DD15	DD15	DA14			
1	HLT	EH38	DD13			
2	DA25	DA25	CJ29	CJ32	DA32	DA31
2	CHG28	CHG28	CJ31	DA33	DA29	CJ28
2	DA07	DA07	DA04	DA11		
1	DA03	DA03	DA12			
1	DA13	DA13	DE14			
2	TCE1	CJ27	DE25	DD45	DCC8	
2	TCE2	CJ30	DE32	DE29	DB36	DC36
2	TCE3	DA31	DB39	DC39	DC43	DF45
2	DA28	DA28	CJ37	CJ39	DA41	DA38
2	DA28	DD28	DD31			
2	DDG28	DDG28	DD32	DD29		
2	CHG36	CHG36	CJ36	CJ40	DA40	DA37
1	PS	DD16	DD20			

FILE: EDS

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M.I.T. LINCOLN LABORATORY

1	MBR	DD13	DD21			
2	MPR	DD17	DD23	DB1		
1	MCD	DD14	DE23			
1	DAC	DD15	DE21			
1	MAR	DD12	DD44			
1	WST	EF32	ED49			
1	PD5	ED51	DE21			
1	DF19	DE19	DC40			
1	WMBP	DE28	DC23			
1	DD19	DD19	DE33			
1	DD22	DD22	DE30			
1	DD24	DD24	DB22			
1	DE24	DE24	DB35			
1	DE22	DE22	DB38			
2	DD47	DD47	DB42	DB43	DC48	DC47
2	DB19	DB19	DC44	DB44		
1	DDG14	DDG14	DEC5			
1	OC2	EF14	DEC4			
1	OC1	EF16	DEC3			
1	OC0	EE16	DEC2			
2	DB12	DB12	DB05	DJ48		
2	DB23	DB23	DB04	DH45	DJ31	
2	DB07	DB07	DC05	DJ47		
2	DC07	DC07	DC04	DJ45		
1	DC02	DC02	DJ46			
1	DH47	DH47	DC37			
1	CJ23	CJ23	EC22			
2	EHG36	EHG36	FJ38	EJ41	EJ33	
2	PHG44	PHG44	EJ44	EJ42		
1	FBG36	FBG36	FB39			
1	F9	EH43	EJ43			
1	F8	EG43	EJ45			
1	PHG28	PHG28	FJ28			
2	FJ29	FJ29	FH38	FP35	FP34	
2	FJ29	FC34	FC35	FC37	FC36	
2	FJ29	EJ34	FJ35	EJ37	EJ36	
2	FBG36	FBG36	FC33	FC38	FC40	
2	FBG44	FBG44	FC42	FC44		
1	PDG36	PDG36	FE39			
1	FE37	FE37	FB36			
1	F7	EG41	FC39			
1	F6	EG38	FC41			
1	F5	EH29	FC43			
1	F4	EH32	FC45			
2	PPG36	PPG36	FP33	FF38	FF40	
2	PPG44	PPG44	FP42	FF44		
1	PHG36	PHG36	FH39			
1	DC35	DC35	DJ30			
1	FP37	PH37	FE38			
1	F3	EH34	FP39			
1	F2	EG34	FP41			
1	F1	EG32	FP43			
1	F0	EG29	FF45			
2	T1	CJ35	FB34	FB34	FH34	
1	T1	CJ35	EP08			

FILE: FDS

TAPFWLST A1 1/19/77 16:12

M.I.T. LINCOLN LABORATORY

1	P1	EF 8	EH08
1	T1	EH18	FF17
1	P1	PH43	FJ30
1	P1	PH42	FH29
1	P2	PH41	FH27
1	P3	PH40	FH25
1	P4	PE43	IJ18
1	P5	PE42	FJ20
1	P6	PE41	FJ22
1	P7	PE40	FH21
1	P8	PH43	FH19
1	P9	PH42	FH17
1	CP0	FJ31	FF26
1	CP0	FF26	FD26
1	CP0	FD26	FB26
1	CP0	FB26	EJ20
1	CP0	EJ16	FJ06
1	CP0	EJ16	FB06
1	CP0	FB16	FD06
1	CP0	FD06	FF06
1	CP0	FF06	FF16
1	CP0	FF16	FF26
1	CP0	FF16	FD16
1	CP0	FD16	FB16
1	CP1	FH30	FF27
1	CP1	FF27	FD27
1	CP1	FD27	FB27
1	CP1	FB27	EJ27
1	CP1	EJ27	EJ17
1	CP1	EJ17	EJ07
1	CP1	EJ07	FB07
1	CP1	FB07	FD07
1	CP1	FD07	FF07
1	CP1	FF07	FF17
1	CP1	FF17	FF27
1	CP1	FF17	FD17
1	CP1	FD17	FB17
1	CP2	FH29	FF28
1	CP2	FF28	FD28
1	CP2	FD28	FB28
1	CP2	FB28	EJ28
1	CP2	EJ28	FJ18
1	CP2	EJ18	EJ08
1	CP2	EJ08	FD08
1	CP2	FD08	FF08
1	CP2	FF08	FF18
1	CP2	FF18	FF28
1	CP2	FF18	FD18
1	CP2	FD18	FB18
1	CP3	FH26	FF25
1	CP3	FF25	FD25
1	CP3	FD25	FB25
1	CP3	FB25	EJ25
1	CP3	EJ25	EJ15

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FILE: EDS

TAPRWLST A1 1/19/77 16:2

M.I.T. LINCOLN LABORATORY

1	CP3	EJ15	EJ05
1	CP3	EJ05	FBC5
1	CP3	FBC5	FD05
1	CP3	FD05	FF05
1	CP3	FF05	FF15
1	CP3	FF15	FF25
1	CP3	FF15	FD15
1	CP3	FD15	FE15
1	CP4	FJ19	FF24
1	CP4	FF24	FD24
1	CP4	FD24	FB24
1	CP4	FB24	EJ24
1	CP4	EJ24	EJ14
1	CP4	FJ14	EJC4
1	CP4	EJC4	FBC4
1	CP4	FBC4	FD04
1	CP4	FD04	FF04
1	CP4	FF04	FF14
1	CP4	FF14	FF24
1	CP4	FF14	FD14
1	CP4	FD14	FB14
1	CP5	FJ21	FF23
1	CP5	FF23	FD23
1	CP5	FD23	FB23
1	CP5	FB23	EJ23
1	CP5	EJ23	EJ13
1	CP5	EJ13	EJC3
1	CP5	EJC3	FBC3
1	CP5	FBC3	FD03
1	CP5	FD03	FF03
1	CP5	FF03	FF13
1	CP5	FF13	FF23
1	CP5	FF13	FD13
1	CP5	FD13	FB13
1	CP6	FJ23	FF22
1	CP6	FF22	FD22
1	CP6	FD22	FB22
1	CP6	FB22	EJ22
1	CP6	EJ22	EJ12
1	CP6	EJ12	EJC2
1	CP6	EJC2	FBC2
1	CP6	FB02	FD02
1	CP6	FD02	FF02
1	CP6	FF02	FF12
1	CP6	FF12	FF22
1	CP6	FF12	FD12
1	CP6	FD12	FB12
1	CP7	FG22	FG23
1	CP7	FG23	FE23
1	CP7	FE23	FC23
1	CP7	FC23	FA23
1	CP7	FA23	FA13
1	CP7	FA13	FA03
1	CP7	FA03	FC03
1	CP7	FC03	FE03

FILE: EDS

TAPFNLST A1

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M.I.T. LINCOLN LABORATORY

1	CP7	FF 3	FGC3
1	CP7	FG 3	FG13
1	CP7	FG13	FG22
1	CP7	FG13	FE13
1	CP7	FE13	FC13
1	CP8	FH27	FG24
1	CP8	FG24	FE24
1	CP8	FE24	FC24
1	CP8	FG24	FA24
1	CP8	FA24	FA14
1	CP8	FA14	FA04
1	CP8	FA04	FGC4
1	CP8	FGC4	FE04
1	CP8	FE04	FGC4
1	CP8	FGC4	FG14
1	CP8	FG14	FG24
1	CP8	FG14	FE14
1	CP8	FE14	FC14
1	CP9	FH18	FF21
1	CP9	FF21	FD21
1	CP9	FD21	FB21
1	CP9	FB21	FJ21
1	CP9	EJ21	EJ11
1	CP9	EJ11	EJ01
1	CP9	EJ01	FB01
1	CP9	FB01	FDC1
1	CP9	FDC1	FF01
1	CP9	FF01	FF11
1	CP9	FF11	FF21
1	CP9	FF11	FD11
1	CP9	FD11	FB11
1	MP0	FG26	EG30
1	MP1	FG27	EG31
1	MP2	FG28	EG33
1	MP3	FG29	EH33
1	MP4	FE26	EH31
1	MP5	FE27	EH30
1	MP6	FE28	EG39
1	MP7	FE29	EG40
1	MP8	FC26	EG42
1	MP9	FC27	EH42
1	MP10	FC28	EH40
1	MP11	FC29	EH39
1	MP12	FA26	EE30
1	MP13	FA27	EE31
1	MP14	FA28	EE33
1	MP15	FA29	FP33
1	MP16	FG16	EF31
1	MP17	FG17	EF30
1	MP18	FG18	EG21
1	MP19	FG19	EG22
1	MP20	FE16	EG24
1	MP21	FE17	EH24
1	MP22	FE18	EH22
1	MP23	FE19	EH21

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TAPFWLST P1

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M.I.T. LINCOLN LABORATORY

1	MP24	FC16	EE21			
1	MP25	FC17	FE22			
1	MP26	FC18	EE24			
1	MP27	FC19	FF24			
1	MP28	FA16	FF22			
1	MP29	FA17	EF21			
1	MP30	FA18	EE12			
1	MP31	FA19	EE13			
1	MP32	FG16	EE15			
1	MP33	FG17	EF15			
1	MP34	FG18	FF13			
1	MP35	FG19	EF12			
1	MP35	FG12	FG12			
1	MP36	EG13	EG13			
1	MP36	FE16	EG13			
1	MP37	FE17	EG14			
2	MP37	EG14	EG15	EH15		
1	MP38	FE18	EG16			
1	MP39	FE19	EH16			
1	MP40	FC16	EH14			
1	MP41	FC17	EH13			
1	MP42	FC18	EE13			
1	MP43	FC19	EE14			
1	MP44	FA16	EE16			
1	MP45	FA17	EF16			
1	MP46	FA18	EF14			
1	MP47	FA19	EF13			
2	TEST	FA15	FC15	FE15	FG15	FA15
2	TEST	FC15	FE15	FG15		
2	TEST	FA25	FC25	FE25	FG25	
2	CTEST	FJ27	FA12	FC12	FE12	FG12
2	CTEST	FA12	FC12	FE12		
2	CTEST	FG12	FA22	FC22	FE22	FG22
1	EDG44	EDG44	ED47			
2	ED48	ED46	EE11	EG11	EE10	EG10
2	ED48	EE19	EG19	EE28	EG37	EG28
2	T2	CJ38	EH44	EH35	EH26	EH17
2	T2	EF35	EF26			
	MP0	EJ1-01	EG30			
	MP1	EJ1-02	EG31			
	MP2	EJ1-03	EG33			
	MP3	EJ1-04	EH33			
	MP4	EJ1-05	EH31			
	MP5	EJ1-06	EH30			
	MP6	EJ1-07	EG39			
	MP7	EJ1-08	EG40			
	MP8	EJ1-09	EG42			
	MP9	EJ1-10	EH42			
	MP10	EJ1-11	EH40			
	MP11	EJ1-12	EH39			
	MP12	FJ1-13	EE30			
	MP06	EJ1-14				
	MP16	EJ1-15				
	MP26	EJ1-16				
	MP36	EJ1-17				

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FILE: EDS

TAPENLST A1

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M.I.T. LINCOLN LABORATORY

MP4G	FJ1-18	
MP5G	EJ1-19	
MP6G	EJ1-20	
MP7G	FJ1-21	
MP8G	FJ1-22	
MP9G	EJ1-23	
MP10G	EJ1-24	
MP11G	EJ1-25	
MP12G	EJ1-26	
MP13	EJ2-C1	FE31
MP14	EJ2-C2	EE33
MP15	EJ2-C3	EF33
MP16	EJ2-C4	EF31
MP17	EJ2-C5	EF30
MP18	EJ2-C6	EG21
MP19	EJ2-C7	EG22
MP20	EJ2-C8	EG24
MP21	EJ2-C9	EH24
MP22	EJ2-10	EH22
MP23	EJ2-11	EH21
MP24	EJ2-12	EE21
MP25	FJ2-13	EE22
MP13G	EJ2-14	
MP14G	EJ2-15	
MP15G	EJ2-16	
MP16G	FJ2-17	
MP17G	EJ2-18	
MP18G	EJ2-19	
MP19G	FJ2-20	
MP20G	EJ2-21	
MP21G	EJ2-22	
MP22G	EJ2-23	
MP23G	EJ2-24	
MP24G	FJ2-25	
MP25G	EJ2-26	
MP26	FJ1-13	EE24
MP27	FJ2-13	EF24
MP28	FJ1-12	EF22
MP29	FJ2-12	EF21
MP30	FJ1-11	EE12
MP31	FJ2-11	EE13
MP32	FJ1-10	EE15
MP33	FJ2-10	EF15
MP34	FJ1-09	EF13
MP35	FJ2-09	EF12
MP36	FJ1-08	EG03
MP37	FJ2-08	FG04
MP38	FJ1-07	EG06
MP39	FJ2-07	EH06
MP40	FJ1-06	EH04
MP41	FJ2-06	EH03
MP42	FJ1-05	EE03
MP43	FJ2-05	EE04
MP44	FJ1-04	EE06
MP45	FJ2-04	EF06

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M.I.T. LINCOLN LABORATORY

MP46	FJ1-C3	FFC4	
MP47	FJ2-C3	EEC3	
MP26G	FJ1-26		
MP27G	FJ2-26		
MP28G	FJ1-25		
MP29G	FJ2-25		
MP30G	FJ1-24		
MP31G	FJ2-24		
MP32G	FJ1-23		
MP33G	FJ2-23		
MP34G	FJ1-22		
MP35G	FJ2-22		
MP36G	FJ1-21		
MP37G	FJ2-21		
MP38G	FJ1-20		
MP39G	FJ2-20		
MP40G	FJ1-19		
MP41G	FJ2-19		
MP42G	FJ1-18		
MP43G	FJ2-18		
MP44G	FJ1-17		
MP45G	FJ2-17		
MP46G	FJ1-16		
MP47G	FJ2-16		
TEST	FJ1-C1	FA05	
TESTG	FJ1-14		
1 TEST	FA05	FJ26	
1 MARSW0	DJ1-04	AJ33	
1 MARSW1	DJ1-C5	AJ35	
1 MARSW2	DJ1-C6	AJ37	
1 MARSW3	DJ1-C7	BA38	
1 MARSW4	DJ1-C8	BA34	
1 MARSW5	DJ1-09	BA36	
1 MARSW6	DJ1-22	BC34	
1 MARSW7	DJ1-21	BC36	
1 MARSW8	DJ1-20	BB33	
1 MARSW9	DJ1-19	BB35	
1 MARSW10	DJ1-18	BB37	
MARSWEN	DJ1-10	BB32	
STOP	DJ1-13	DD14	
STOPG	DJ1-26		
START	DJ2-13	DE11	
STARTG	DJ2-26		
STPD	DJ1-11	EC23	
STPDG	DJ1-24		
T6	DJ1-12	DD30	
T6G	DJ1-25		
MARSWG	DJ1-17		
MARSWENG	DJ1-23		
2 MARSWPN	BR32	BC33	AJ32 BA33 AH36
CS0T	DJ1-C1	EF43	
CS1T	DJ2-C1	EE38	
F2T	DJ1-02	EF40	
CPPT	DJ2-02	EF39	
CIVOT	DJ1-03	EE42	

FILE: EPS

TAPFWLSP A1

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M.I.T. LINCOLN LABORATORY

	CIV1T	DJ2-C3	RE4
	CS0TG	DJ1-14	
	CS1TG	DJ2-14	
	CTTG	DJ1-15	
	CPPTG	DJ2-15	
	CIV0TG	DJ1-16	
	CIV1TG	DJ2-16	
1	CY0	DJ2-04	BH40
1	CY1	DJ2-C5	BJ50
1	CY2	DJ2-C6	BJ48
1	CY3	DJ2-C7	BJ46
1	CY4	DJ2-C8	CG45
1	CY5	DJ2-09	CG47
1	CY6	DJ2-10	CG49
1	CY7	DJ2-11	CH50
1	CY8	DJ2-15	CH48
1	CY9	DJ2-24	CH46
1	CY10	DJ2-23	AH41
1	CY11	DJ2-22	AH39
1	CY12	DJ2-21	BH41
1	CY13	DJ2-20	BJ42
1	CY14	DJ2-19	BJ40
1	CY15	DJ2-18	BJ38
	CY61	DJ2-17	
	CY62	DJ2-12	
	T7	BJ1-C1	FB43
	T7G	BJ1-14	
	HPCL	BJ2-C1	DB22
	MPCLG	BJ1-14	
	MPCK	BJ1-C2	DC35
	MPCKG	BJ1-14	
	MPSP	DJ32	BJ2-23
	MPSPG	DH32	BJ2-16
	Y0	AJ1-C1	BD16
	Y1	AJ2-01	BD17
	Y2	AJ1-02	BD19
	Y3	AJ2-C2	BE19
	Y4	AJ1-C3	BE17
	Y5	AJ2-C3	BE16
	Y6	AJ1-04	BB16
	Y7	AJ2-C4	BB17
	Y8	AJ1-C5	BB19
	Y9	AJ2-C5	BC19
	Y10	AJ1-C6	BC17
	Y11	AJ2-C6	BC16
	Y12	AJ1-C7	AJ16
	Y13	AJ2-C7	AJ17
	Y14	AJ1-C8	AJ19
	Y15	AJ2-C8	BA19
	TDAC	BJ2-C2	DB37
	TDACG	BJ2-15	
	THCD	BJ1-C3	DB34
	THCDG	BJ1-16	
	Y0G	AJ1-14	
	Y1G	AJ2-14	

FILE: EDS

TAPRWLST A1 1/19/77 16:02

M.I.T. LINCOLN LABORATORY

Y2G	AJ1-15	
Y3G	AJ2-15	
Y4G	AJ1-16	
Y5G	AJ2-16	
Y6G	AJ1-17	
Y7G	AJ2-17	
Y8G	AJ1-18	
Y9G	AJ2-18	
Y10G	AJ1-19	
Y11G	AJ2-19	
Y12G	AJ1-20	
Y13G	AJ2-20	
Y14G	AJ1-21	
Y15G	AJ2-21	
TPSC	BJ1-04	DF31
TPSCG	BJ1-17	
PSCK	BJ2-04	EC19
PSCKG	BJ2-17	
PSSL	BJ1-05	DD19
PSSLG	BJ1-08	
D'	BJ1-06	CF37
D1	BJ2-06	CF38
D2	BJ1-07	CF39
D3	BJ2-07	CF40
D4	BJ1-08	CC37
D5	BJ2-08	CC38
D6	BJ1-09	CC39
D7	BJ2-09	CC40
D8	BJ1-10	CF16
D9	BJ2-10	CF17
D10	BJ1-11	CF18
D11	BJ2-11	CF19
D12	BJ1-12	CC16
D13	BJ2-12	CC17
D14	BJ1-13	CC18
D15	BJ2-13	CC19
SPRY	AJ1-09	ECC4
SPRYG	AJ1-22	
PSRY	AJ2-09	EC03
SPRYG	AJ2-22	
ADCFY	AJ1-10	ECC6
ADCRYG	AJ1-23	
DAG	BJ1-19	
D1G	BJ2-19	
D2G	BJ1-20	
D3G	BJ2-20	
D4G	BJ1-21	
D5G	BJ2-21	
D6G	BJ1-22	
D7G	BJ2-22	
D8G	BJ1-23	
D9G	BJ2-23	
D10G	BJ1-24	
D11G	BJ2-24	
D12G	BJ1-25	

FILE: EDS

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M.I.T. LINCOLN LABORATORY

D13G	BJ2-25	
D14G	BJ1-26	
D15G	BJ2-26	
IC01	AJ1-12	FG11
IC11	AJ1-13	EG14
IC21	AJ2-12	FG16
JSW	CJ1-01	FD30
JSV	CJ1-02	ED29
INIT	CJ1-03	DA05
IC21	AJ2-12	EG16
IC22	AJ2-13	EH16

Wire List (Punched Card Image) Board II

FILE: EDS2 TAPRWLST A1 1/19/77 16:03 M.T.T. LINCOLN LABORATORY

	POWER	AND	GROUND	
1	AHG20		AHG20	AJ21
1	ACC1		ACC1	ABV08
1	AA12		AA12	ABG12
1	AF11		AF11	APV08
1	AD12		AD12	ADG12
1	AJ01		AJ01	AHV08
1	AG12		AG12	AHG12
1	BC01		BC01	BBV08
1	BA12		BA12	BBG12
1	BF01		BF01	BFV08
1	BD12		BD12	PDG12
1	BJ01		BJ01	PHV08
1	BG12		BG12	BHG12
1	CC01		CC01	CBV08
1	CA12		CA12	CBG12
1	AHG44		AHG44	AJ48
1	CF01		CF01	CFV08
1	CD12		CD12	CDG12
1	AB14		AB14	ABV16
1	AA21		AA21	ABG20
1	AD14		AD14	ADV16
1	AC21		AC21	ADG20
1	AF14		AF14	APV16
1	AE21		AE21	APG20
1	AH14		AH14	AHV16
1	AHG20		AHG20	AG21
1	BBV16		BBV16	BA14
1	BBV16		BBV16	BC14
1	BB21		BB21	BRG20
1	BE14		BE14	BDV16
1	BDG20		BDG20	BD21
1	BG14		BG14	PFV16
1	BF21		BF21	BFG20
1	BJ14		BJ14	BHV16
1	BH21		BH21	BHG20
1	CB14		CB14	CBV16
1	CBG20		CBG20	CA21
1	CD14		CD14	CDV16
1	CBG20		CBG20	CC21
1	AA24		AA24	ABV24
1	AF23		AF23	APV24
1	AE30		AE30	ADG28
1	AH23		AH23	AHV24
1	BBV24		BBV24	BA23
1	AHG28		AHG28	AJ30
1	BBV24		BBV24	BC23
1	BDG28		BDG28	BB30
1	BE23		BE23	BDV24
1	BD30		BD30	BDG28
1	BG23		BG23	BFV24
1	BF30		BF30	BFG28
1	BJ23		BJ23	BHV24
1	BH30		BH30	BHG28
1	CB23		CB23	CBV24

FILE: EDS2

TAPRWLST A1

1/19/77 16:03

M.I.T. LINCOLN LABORATORY

1	CBG28	CBG28	CA3C			
1	AF32	AF32	AFV32			
1	AE39	AF39	ADG36			
1	AG39	AG39	AFG36			
1	BHG36	BHG36	BA39			
1	BC32	BC32	BBV32			
1	BHG36	BHG36	BD39			
1	BE32	BE32	EDV32			
1	BD39	BD39	BDG36			
1	BG32	BG32	DFV32			
1	BF39	BF39	BFG36			
1	DJ32	DJ32	BHV32			
1	BH39	BH39	BHG36			
1	AA39	AA39	ABG36			
1	AD36	AD36	ADV40			
1	ABG44	ABG44	AC42			
1	AH41	AH41	AHV40			
1	AG48	AG48	AFG44			
1	BBV40	BBV40	BA42			
1	BBV40	BBV40	BC41			
1	BHG44	BHG44	BB47			
1	BE41	BE41	BDV40			
1	BD47	BD47	BDG44			
1	BG41	BG41	BFV40			
1	BFG44	BFG44	BF47			
1	ABV48	ABV48	AB44			
1	ABG44	ABG44	AA5C			
1	AD44	AD44	ADV48			
1	ADG44	ADG44	AC5C			
1	ADG44	ADG44	AE5C			
1	AH32	AH32	AHV32			
	INPUT	OUTPUT	LOGIC			
2	ICC1	AF25	AH25	BA25	BC25	BE25
2	ICC1	BG25	BJ25	CB25		
2	IC11	AE24	AG24	AJ24	BB24	BD24
2	IC11	BF24	BH24	CA24		
2	IC21	AE23	AF24	AG23	AH24	
2	IC21	AJ23	BA24	BB23	BC24	
2	IC22	BD23	BE24	BF23	BG24	
2	IC22	BH23	BJ24	CA23	CB24	
1	AD0	AH33	BH27			
1	AD1	AH36	BJ28			
1	AD2	AH38	BF27			
1	AD3	AG38	BG28			
1	AD4	AG36	BD27			
1	AD5	AG33	BE28			
1	AD6	AF33	BR27			
1	AD7	AF36	BC28			
1	AD8	AF38	AJ27			
1	AD9	AE38	BA28			
1	AD10	AE36	AG27			
2	AD11	BF46	AH28	AE27	AF28	
1	AE33	AE33	BF45			
2	CBG28	CBG28	CA27	CB28		
1	SPC	AD37	CA28			

FILE: EDS2

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M.T.T. LINCOLN LABORATORY

1	SP1	AD38	CE20			
1	SP2	AD39	DE20			
1	SP3	AD40	DJ20			
1	SP4	AC41	BF28			
1	SP5	AC42	BG29			
1	SP6	AC39	BD28			
1	SP7	AC38	BE29			
2	BFG28	BFG28	RR28	BC29	BA29	AJ28
2	AHG28	AHG28	AH29	AG28		
2	AFG28	AFG28	AF29	AF28		
1	ADC1	AC31	AH34			
1	ADC1	AC32	AH35			
1	ADC2	AC29	AH37			
1	ADC3	AC28	AG37			
1	ADC4	AC27	AG35			
1	ADC5	AC26	AG34			
1	ADC6	AA26	AF34			
1	ADC7	AA27	AF35			
1	ADC8	AA28	AF37			
1	ADC9	AA29	AE37			
1	ADC10	AA30	AF35			
1	ADC11	AA31	AE34			
1	BFG44	BFG44	BF43			
2	BF44	BF44	AG32	AE32	BB32	BD32
2	BF44	BF32	BH32			
1	AB42	AB42	AC33			
1	AA41	AA41	AA33			
	ADC CLOCK LOGIC					
1	BD46	BD46	BA44			
1	BD44	BD44	BA45			
2	BA48	BA48	BD45	AC23		
1	BFG44	BFG44	BB42			
1	BE47	BE47	BC43			
1	BB44	BB44	BE46			
1	BB46	BB46	BC42			
1	BG44	BG44	DB43			
1	BG45	BG45	BE45			
2	BC44	BC44	BE43	BE42	BG42	
1	BG43	BG43	AA23			
2	ADCRY	BE44	BC39	BG39	AA36	AP39
2	ADCRY	AH39				
2	BF44	AD41	AC37	AH48		
2	BF42	BD14	BF14	BH14	CA14	CC14
2	BF42	BF42	AA14	AE14	AJ14	
2	ABV48	ABV48	AA46	AB46	AC46	
2	AJ46	AJ46	BA43	BD42		
1	AJ45	AJ45	BD41			
1	BD43	BD43	AJ43			
1	BA48	BA48	DB41			
1	ABG28	ABG28	AC24			
1	IDA0	BE33	BC34			
1	IDA1	BE36	BC35			
1	IDA2	BE38	BC37			
1	IDA3	BD38	BB37			
1	IDA4	BD36	BB35			

FILE: EDS2 TAPPLST A1 1/19/77 16:03 M.I.T. LINCOLN LABORATORY

1	IDA5	BD33	UB34			
1	IDA6	BJ33	BG34			
1	IDA7	BJ36	BG35			
1	IDA8	RJ34	BG37			
1	IDA9	BH39	BF37			
1	IDA10	BH36	BF35			
1	IDA11	BH33	PF34			
1	DA1	BC33	BA32			
1	DA1	BC36	BA33			
1	DA2	BC39	BA34			
1	DA3	BB38	BA35			
1	DA4	BB36	BA36			
1	DA5	BF33	BA37			
1	DA6	BG33	AJ37			
1	DA8	BG36	AJ36			
1	DA8	BG38	AJ35			
1	DA9	BF38	AJ34			
1	DA10	BF36	AJ33			
1	DA11	BF33	AJ32			
1	AB45	AC36				
1	AA45	AA45	AD42			
2	AH44	AH44	AE44	AF45	AE46	AE47
1	AHG44	AHG44	AG41			
1	BFG44	BFG44	BF41			
2	X0	AJ15	CA06	CD06		
2	X1	AJ18	CA05	CD05		
2	X2	AJ20	CAG4	CD04		
2	X3	BA20	CA03	CD03	BD07	BG07
2	X4	BA18	BD06	BG06		
2	X5	BA15	BD05	BG05		
2	X6	AE15	BD04	BG04		
2	X7	AE18	BD03	BG03	AG07	BAC7
2	X8	AE20	AG06	BAG6		
2	X9	AF20	AG05	BAG5		
2	X10	AF18	AG04	BAG4		
2	X11	AF15	AG03	BAG3	AA07	ADC7
2	X12	AA15	AA06	AD06		
2	X13	AA18	AA05	AD05		
2	X14	AA20	AA04	AD04		
2	X15	AB20	AAC3	AAC1	AD03	ADC1
2	IP00	CA08	BF15	BF16		
2	IP01	CA09	BH15	BH16		
1	IP02	CA10	CF06			
1	IP03	CA11	CF07			
1	IP04	BD08	CF08			
1	IP05	BD09	CF09			
1	IP06	PD10	FJ06			
1	IP07	PD11	HJC7			
1	IP08	PD12	HJC8			
1	IP09	PD13	HJC9			
1	IP010	PD14	BCC6			
1	IP011	PD15	BC07			
1	IP012	PD16	BCC8			
1	IP013	PD17	EC09			
1	IP014	AA1	APC6			

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M.I.T. LINCOLN LABORATORY

1	IPC15	AA11	AFC7			
1	IPC16	AC11	AFC8			
1	IPC17	AC12	AFC9			
2	IP10	CD18	CA15	CA16		
2	IP11	CD19	CC15	CC16		
1	IP12	CD10	BB16			
1	IP13	CD11	BB17			
1	IP14	BG18	BB19			
1	IP15	BG19	BC19			
1	IP16	BG10	BC17			
1	IP17	BG11	BC16			
1	IP18	BA18	AG16			
1	IP19	BA19	AG17			
1	IP110	BA10	AG19			
1	IP111	BA11	AH19			
1	IP112	AD08	AC16			
1	IP113	AD09	AC17			
1	IP114	AD10	AC19			
1	IP115	AD11	AD19			
1	IP116	AP11	AD17			
1	IP117	AP10	AD16			
2	UP0	BB15	CC06	CR26		
2	UP1	BB18	CC07	BH25		
2	UP2	BB20	CC08	BJ26		
2	UP3	BC20	CCC9	BF25		
2	UP4	BC18	BF06	BG26		
2	UP5	BC15	BF07	BD25		
2	UP6	AG15	BF08	BE26		
2	UP7	AG18	BF09	BR25		
2	UP8	AG20	AJ06	BC26		
2	UP9	AH20	AJ07	AJ25		
2	UP10	AC15	AJ08	BA26		
2	UP11	AC18	AJ09	AG25		
2	UP12	AC20	ACC6	AH26		
2	UP13	AD20	ACC7	AE25		
2	UP14	AD18	AC08	AF26		
1	UP15	AD15	ACC9			
2	MY-1	BE18	CC02	BF02	AJ02	AC02
2	BDG20	BDG20	BD20	BD15	BD16	
1	LP15	CD15	CA25			
2	LP1	BJ18	CCC4	BF04	AJ04	ACC4
1	LP1	CF02	EJ02	BC02	AF02	
2	LP2	CC04	CAC2			
2	LP3	CR18	CF03	BJ03	BC03	AF03
1	CC12	CD18	CF04	BJ04	BC04	AF04
1	BF12	CC12	BDC2			
1	AJ12	BF12	AGC2			
1	LP3	AJ12	AA02			
1	CF12	CF14	CD02			
1	BJ12	CF12	BG02			
1	BC12	BJ12	BA02			
2	CBG04	BC12	ADC2			
2	CDG04	CBG04	CAC7			
1	BF05	CDG04	CD07	CC05		
		BF05	BFG04	CF05		

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M.I.T. LINCOLN LABORATORY

1	AJC5	AJC5	AHG4			
1	AC05	AC05	AG04			
1	AP05	AP05	AF04			
1	BC05	BC05	BHG4			
1	PJC5	PJC5	BHG4			
1	LP0	BG16	CA26			
2	LP0	BG18	CC03	BFC3	AJ03	AC03
1	LP1	BJ18	CB27			
1	LP2	CB18	BF26			
1	LP3	CD18	BJ27			
1	LP4	BG17	BF26			
1	LP5	BJ17	BG27			
1	LP6	CB17	BD26			
1	LP7	CD17	BE27			
1	LP8	BG16	UB26			
1	LP9	BJ16	BC27			
1	LP10	CB16	AJ26			
1	LP11	CD16	PA27			
1	LP12	BG15	AG26			
1	LP13	BJ15	AH27			
1	LP14	CB15	AE26			
1	LP15	CD15	AF27			
	THCD	BJ2-03	BA21			
	THCDG	BJ2-16				
2	THCD	BA21	AF21	AB21		
	MPCI	BJ1-01	BE21			
	MPSP	BJ1-03	BB14			
	MPSPG	BJ1-16				
2	MPCL	BE21	BG21	BJ21	CB21	
2	MPCL	CD21				
1	MPCL	BB14	AG14			
1	MPCL	AG14	AC14			
	MPCK	BJ2-02	BC21			
	MPCKG	BJ2-15				
2	MPCK	BC21	BF20	BG20	BJ20	CB20
2	MPCK	CD20	AH21	AD21		
	Y0	AJ2-01	AJ16			
	Y1	AJ1-01	AJ17			
	Y2	AJ2-02	AJ19			
	Y3	AJ1-02	BA19			
	Y4	AJ2-03	BA17			
	Y5	AJ1-03	BA16			
	Y6	AJ2-04	AE16			
	Y7	AJ1-04	AE17			
	Y8	AJ2-05	AE19			
	Y9	AJ1-05	AF19			
	Y10	AJ2-06	AF17			
	Y11	AJ1-06	AF16			
	Y12	AJ2-07	AA16			
	Y13	AJ1-07	AA17			
	Y14	AJ2-08	AA19			
	Y15	AJ1-08	AB19			
1	CY15	BG47	BH34			
2	ABG44	ABG44	AB40	AB50	AA48	AA44
2	ADG44	ADG44	AD40	AD50	AC48	AC44

FILE: FDS2

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M.I.T. LINCOLN LABORATORY

P2

1	TDAC	BE39	BJ39		
	PSCK	BJ1-04	AG47		
	PSL	BJ2-05	AH42		
	T7	BJ2-01	AJ42		
	ISRY	AJ1-09	AC45		
	ISRY	AJ2-09	AA45		
	ADCRY	AJ2-10	AF39		
	AC	BJ1-02	FE39		
		BJ2-06	CA29		
		BJ1-06	CB30		
		BJ2-07	BH29		
		BJ1-07	BJ30		
		BJ2-08	BF29		
		BJ1-08	RG30		
		BJ2-09	BD29		
		BJ1-09	FE30		
		BJ2-10	BB29		
		BJ1-10	BC30		
		BJ2-11	AJ29		
		BJ1-11	BA30		
		BJ2-12	AG29		
		BJ1-12	AH30		
		BJ2-13	AE29		
		BJ1-13	AF30		
	IC01	AJ2-12	AF25		
	IC11	AJ2-13	AE24		
	IC21	AJ1-12	AE23		
	IC22	AJ1-13	BD23		
2	Y0	AH43	AJ16	BF20	
2	Y1	AH45	AJ17	BH20	
2	Y2	AH46	AJ19	CA20	
2	Y3	AH47	BA19	CC20	BD19
2	Y4	AG45	FE34	BA17	BF19
2	Y5	AG44	BE35	BA16	BH19
2	Y6	AG43	BE37	AE16	CA19
2	Y7	AG42	BD37	AE17	CC19
2	Y8	BD35	AE19	BF18	
2	Y9	BD34	AF19	BH18	
2	Y10	BJ34	AF17	CA18	
2	Y11	BJ35	AF16	BD17	CC18
2	Y12	BJ37	AA16	BF17	
2	Y13	BH37	AA17	BH17	
2	Y14	BH35	AA19	CA17	
2	Y15	AB19	BG46	CC17	
	TPSC	BJ2-04	AG46		
	SPDATAG	CJ2-14	AB50		
	SPCLK	CJ2-02	AA49		
	SPCLKG	CJ2-15	AA48		
	PSDATA	CJ2-07	AE48		
	PSDATAG	CJ2-20	AFG44		
	PSCLK	CJ2-06	AC49		
	PSCLKG	CJ2-19	AC48		
	DAOUT	CJ1-11	BA38		
	DAOUTG	CJ1-24	BA39		
	SHIN	CJ1-12	AB37		

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M.I.T. LINCOLN LABORATORY

SHING	CJ1-25	AA41			
+15V	CJ1-05	AF44	AJ4C	AC32	AB39 NOT TWISTED PAIR
-15V	CJ1-06	AF5C	BA40	AC34	AA36
ANALOG	CJ1-03	EA39	AA33	AA41	
SPDATA	CJ2-01	AB49			

Listing of LPCM ROM Code

TITLE: LPCM LINEAR PREDICTIVE VOCODER
IFSTLPC3E 9/13/76

PARAMETER ASSIGNMENTS

N=159.
P=12.
D24=10.
INT=50
PTRN=5
THOID=1777
FRM=6

CODING PARAMETERS

NPIT=8.
NFN=5

NK024=6
NK124=6
NK224=4
NK324=4
NK424=3
NK524=3
NK624=3
NK724=3
NK824=3
NK924=3

NK036=6
NK136=6
NK236=5
NK336=5
NK436=5
NK536=5
NK636=5
NK736=5
NK836=5
NK936=5
NK1036=5
NK1136=5

NK048=7
NK148=7
NK248=7
NK348=7
NK448=7

NK54A=7
NK64A=7
NK74A=7
NK84A=7
NK94A=7
NK104A=7
NK114A=7

PAGE

ILPC INITIALIZATION ROUTINE

INITIAL	MOV	FD	R	R0	SIL	FLD 1600	CLEAR RAM
01000							
01001							
01002	DECA	A0	R	R0	MAR	TSI	
01003							
01004	CLR	Y	MBR	JNZ	FLD --1		
01005							
01006	POVD	FD	Y	MAR	FLD PVAL		
01007							
01008	POVD	FD	Y	MBR	FLD P+2		PVAL CONTAINS P+2
01009							
01010	MOV	FD	Y	MAR	FLD RAN		
01011							
01012	MOV	FD	Y	MBR	FLD 100		
01013							
01014	MOV	FD	Y	MAR	FLD NPTCH		
01015							
01016	CSD	FD	Y	MBR	FLD 1		
01017							
01018	NOOP	JSV	FLD 48R				
01019							
01020	NOOP	JSV	FLD 36R				
01021							
01022	MOV	FD	Y	MAR	FLD MASK		
01023							
01024	MOV	FD	Y	MBR	FLD MSK24		
01025							
01026	MOV	FD	Y	MAR	FLD NRITS		
01027							
01028	MOV	FD	Y	MBR	FLD NRIT24		
01029							
01030	MOV	FD	Y	MAR	FLD DCTRL		
01031							
01032	MOV	FD	Y	MBR	FLD DCRD24		
01033							
01034							
01035							
01036							
01037							
01038							
01039							
01040							
01041							
01042							
01043							
01044							
01045							
01046							
01047							
01048							
01049							
01050							
01051							
01052							
01053							
01054							
01055							
01056							
01057							
01058							
01059							
01060							
01061							
01062							

24R

MOV	FD	Y	MAR	FLD PVAL	36R	MOV	FD	Y	MAR	FLD PVAL	36R
MOV	FD	Y	MAR	FLD P24+2	36R	MOV	FD	Y	MAR	FLD P24+2	36R
MOV	FD	Y	MAR	FLD ORPTR	36R	MOV	FD	Y	MAR	FLD ORPTR	36R
CSD	FD	Y	MAR	FLD 2+P	36R	CSD	FD	Y	MAR	FLD 2+P	36R
MOV	FD	Y	MAR	FLD IRITCT	36R	MOV	FD	Y	MAR	FLD IRITCT	36R
CSD	FD	Y	MAR	FLD A.+NK924-1	36R	CSD	FD	Y	MAR	FLD A.+NK924-1	36R
MOV	FD	Y	MAR	FLD ORITCT	36R	MOV	FD	Y	MAR	FLD ORITCT	36R
CSD	FD	Y	MAR	FLD NK924-1	36R	CSD	FD	Y	MAR	FLD NK924-1	36R
NOOP	JP	Y	FLD IDLE		36R	NOOP	JP	Y	FLD IDLE		36R
MOV	FD	Y	MAR	FLC MASK	36R	MOV	FD	Y	MAR	FLC MASK	36R
MOV	FD	Y	MAR	FLC MASK36	36R	MOV	FD	Y	MAR	FLC MASK36	36R
MOV	FD	Y	MAR	FLD NRITS	36R	MOV	FD	Y	MAR	FLD NRITS	36R
MOV	FD	Y	MAR	FLC NRIT36	36R	MOV	FD	Y	MAR	FLC NRIT36	36R
MOV	FD	Y	MAR	FLD NRIT	36R	MOV	FD	Y	MAR	FLD NRIT	36R
MOV	FD	Y	MAR	FLD DCAN36	36R	MOV	FD	Y	MAR	FLD DCAN36	36R
MOV	FD	Y	MAR	FLD IRITCT	36R	MOV	FD	Y	MAR	FLD IRITCT	36R
CSD	FD	Y	MAR	FLD A.+NK1136-1	36R	CSD	FD	Y	MAR	FLD A.+NK1136-1	36R
MOV	FD	Y	MAR	FLD ORITCT	36R	MOV	FD	Y	MAR	FLD ORITCT	36R
CSD	FD	Y	MAR	FLD NK1136-1	36R	CSD	FD	Y	MAR	FLD NK1136-1	36R

Address	OpCode	JP	FLD IDLE	Comments
010154	NOOP			
010155	NOOP			
010156	NOOP			
010157	NOOP			
010160	NOOP			
010161	NOOP			
010162	NOOP			
010163	NOOP			
010164	NOOP			
010165	NOOP			
010166	NOOP			
010167	NOOP			
010170	NOOP			
010171	NOOP			
010172	NOOP			
010173	NOOP			
010174	NOOP			
010175	NOOP			
010176	NOOP			
010177	NOOP			
010200	NOOP			
010201	NOOP			
010202	NOOP			
010203	NOOP			
010204	NOOP			
010205	NOOP			
010206	NOOP			
010207	NOOP			
010210	NOOP			
010211	NOOP			
010212	NOOP			
010213	NOOP			
010214	NOOP			
010215	NOOP			
010216	NOOP			
010217	NOOP			
010140	NOOP			
010141	NOOP			
010142	NOOP			
010143	NOOP			
010144	NOOP			
010145	NOOP			
010146	NOOP			
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010148	NOOP			
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010150	NOOP			
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010155	NOOP			
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010157	NOOP			
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010159	NOOP			
010160	NOOP			
010161	NOOP			
010162	NOOP			
010163	NOOP			
010164	NOOP			
010165	NOOP			
010166	NOOP			
010167	NOOP			
010168	NOOP			
010169	NOOP			
010170	NOOP			
010171	NOOP			
010172	NOOP			
010173	NOOP			
010174	NOOP			
010175	NOOP			
010176	NOOP			
010177	NOOP			
010200	NOOP			
010201	NOOP			
010202	NOOP			
010203	NOOP			
010204	NOOP			
010205	NOOP			
010206	NOOP			
010207	NOOP			
010210	NOOP			
010211	NOOP			
010212	NOOP			
010213	NOOP			
010214	NOOP			
010215	NOOP			
010216	NOOP			
010217	NOOP			

INLF	MOVU	FD	Y	MAR	RIL	FLD	FRSTFG
010220	037151	0060					
010221	000000	0060					
010222	100050	0060					
010223	037140	0061	Y				
010224	000000	0061					
010225	000000	0061					
010226	037140	0062	MOR	Y	TST	SIL	:IDLF LOOP
010227	000001	0062					
010230	000000	0062					
010231	000140	0063	RIL	JZ	FLD	.-2	
010232	000030	0063					
010233	100061	0063					
010234	042142	0064	Y	MPF		:CLEAR START FLAG	
010235	000000	0064					
010236	000000	0064					

: PITCH DETECTOR

PDET	MOVU	FD	Y	MAR	FLD	HY	
010237	037151	0065					
010240	000000	0065					
010241	000051	0065					
010242	037151	0066	Y	MAR	SIL	FLD	LO
010243	000000	0066					
010244	040052	0065					
010245	037140	0067	MOR	R	B7	RIL	
010246	000000	0067					
010247	100000	0067					
010250	115540	0070	MOR	A7	B	B7	:HI-LO
010251	070000	0070					
010252	000000	0070					
010253	115550	0071	SUPAI	A7	FD	F	B7
010254	070001	0071					
010255	041777	0071					
010256	042142	0072	Y	MAR		:CLEAR LO	
010257	000000	0072					
010260	000000	0072					
010261	037151	0073	FD	Y	MAR	FLD	HY
010262	000000	0073					
010263	000051	0073					
010264	042142	0074	CLP	Y	MAR	RIL	JPZ
010265	000020	0074					
010266	100113	0074					
010267	037151	0075	FD	Y	MAR	FLD	PITCH
010270	000000	0075					
010271	000102	0075					
010272	042142	0075	CLP	Y	MAR		:CLEAR PITCH
010273	000000	0075					
010274	000000	0075					
010275	037151	0077	MOVU	FD	Y	MAR	FLD
010276	000000	0077					
010277	000053	0077					
010300	117152	0100	CSO	FD	Y	MAR	FLD
010301	000000	0100					:SFT LOCK

010302	000001	MOV	R	P7	FID 6		
010303	037250						
010304	000000						
010305	000006						
010306	117250						
010307	001000						
010310	000065						
010311	117250						
010312	001000						
010313	000003						
010314	000051						
010315	110000						
010316	001007						
010317	100240						
010320	101001						
010321	040000						
010322	000051						
010323	100000						
010324	000064						
010325	007142						
010326	000020						
010327	100040						
010330	114240						
010331	111101						
010332	040000						
010333	000040						
010334	000040						
010335	100104						
010336	001040						
010337	071010						
010340	000103						
010341	037250						
010342	000000						
010343	000000						
010344	042240						
010345	001000						
010346	000000						
010347	117250						
010350	001100						
010351	000035						
010352	034141						
010353	070000						
010354	000000						
010355	000051						
010356	110000						
010357	040074						
010360	007242						
010361	014000						
010362	100000						
010363	000051						
010364	070000						
010365	000001						
010366	000051						
010367	110000						
010370	040037						
010371	007242						
010372	001200						

LP2	MOV	FD	R	P7	FID 6		
	CSE	FD	R	R10	FLR 53.		
	CSD	FD	R	R11	FLR 3	:INITIALIZE BLOCKS	
LP1	ADDDA	FD	A11	Y	MAR	FLU CHAN1+3	
	INCA	A10	PAY	R10	TST	SIL	
	ADDDA	FD	A10	Y	MAR	FLU CHAN+53.-1	
	MOV	MOR	Y	MAR	R11	JP2 FID FIXPIT	
	INCA	A11	PAY	F11	TST	SIL	
	NOOP	RIL	JP	FLD LP1			
	ADDDA	A7	R10	P	JP	FID LP2	:NEXT BLOCK
PRFTT	MOV	FD	R	R7	FID CHAN		
	CLR	R	R10				
	CSE	FD	R	R11	FLD 29.		
GRAND	MOVA	A7	Y	MAR	:SET UP PITCH MATRIX		
	ADDDA	FD	A10	Y	MAR	SIL FID PTAB	
	MOV	MOR	P	MSP	R14	RIL :PA	
	ADDDA	FD	A7	Y	MAR	FID 1	
	ADDDA	FD	A11	Y	MAR	SIL FID PTAB+35.	
	MOV	MOR	P	MSP	R12	RIL :PB	

010373	100000	0123	ADDDA	FD	A7	Y	MAP	FLD 2
010374	000051	0124						
010375	070000	0124						
010376	000002	0124	ADDDA	FD	A11	Y	PAR	SIL FLD PTAR+36.
010377	000051	0125						
010400	100000	0125	POVD	NOR	R	PER	B13	RIL IPC
010401	000040	0125						
010402	047042	0125						
010403	001000	0125						
010404	100000	0126	ADDDA	FD	A11	Y	MAP	FLD PTAR+37.
010405	000051	0127						
010406	100000	0127	ADDDA	A12	B13	R	PER	IPR+PR
010407	000041	0127						
010410	001042	0130						
010411	121000	0130						
010412	000000	0130	ADDDA	FD	A11	Y	MAP	FLD PTAR+38.
010413	000051	0131						
010414	100000	0131	ADDDA	A13	B14	Y	PER	IPR+PR+PC
010415	000042	0131						
010416	001042	0132						
010417	100000	0132	ADDDA	FD	A11	Y	MAP	FLD PTAR+39.
010420	000000	0132						
010421	000051	0133	ADDDA	FD	A7	R	R7	FLD 10. :NEXT BLOCK
010422	100000	0133						
010423	000043	0133						
010424	000050	0134	TNCA	A10	R	R10		
010425	070000	0134						
010426	000012	0134						
010427	100000	0135	ADDDA	FD	A11	R	B11	TSI SIL FLD 5.
010430	100000	0135						
010431	000000	0135	ADDDA	A12	B14	Y	PAR	RIL JN FLD CCAND :PA+PP
010432	000050	0135						
010433	100000	0136						
010434	000005	0136						
010435	001042	0137	POVD	FD	Y	PAR	FLD WTNOC.	
010436	121040	0137						
010437	100016	0137						
010440	000051	0140	CSD	FD	Y	PAR	FLD 1	:SFT WINNING SCORE NEG.
010441	000000	0140						
010442	100050	0141						
010443	000000	0141						
010444	000000	0141						
010445	000001	0141						

:R7=PARX PARX INDEX
 :R10=MAG. SCCKF
 :R11=EXPAND POTINTER TO PITCH CANDIDATE
 :R12=INDEX FOR D036
 :R13=WORKING REGISTER
 :R14=CANDY PITCH CANDIDATE
 :R15=PARNE
 :R16=WTNOM
 :R17=SCORE

010446	100050	0142	CSD	FD	P	P11	FLD 5
010447	001000	0142					

RTGLUP	MOVL	FD	Y	MAR	FLP PCCO	CURRENT SCORE
000005						
010450						
010451						
010452						
010453						
010454						
010455						
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010460						
010461						
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010541	040000	NOOP	RIL	JN	FLD .+2				
010542	000040								
010543	040040								
010544	100070	CSA	A13	F	P13				
010545	120040								
010546	130000								
010547	000000	ADDAF	A15	R13	P	TST	SIL	:THRESH_MAG. DELTA P	
010548	000000								
010549	160001								
010550	000000								
010551	040000	ADDDA	FD	A12	Y	MAR	FLU	PTAR+36.	
010552	000000								
010553	000000								
010554	000000								
010555	000000								
010556	100000	INCA	A12	RAY	R12	TST	JN	FLD	N000 :JUMP ON FAILURE
010557	120001								
010558	000070								
010559	100000	INCA	A17	P	R17			:INCREMENT <CONF	
010560	170000								
010561	000000								
010562	170000								
010563	000000								
010564	170000	SURAG	A14	MOR	R	B13	TST	SIL	JN FLD N006
010565	170000								
010566	040000	MOVA	A17	Y	TST	SIL			:TEST SCOPE
010567	040000								
010568	170001								
010569	040000	MOVD	FD	Y	MAR	FLD	PSCO		
010570	040000								
010571	040000								
010572	040000	MOVA	A17	P	B10	RIL	JPZ	FLD .+2	:TAKE MAG SCOPE
010573	040000								
010574	170001								
010575	120000	CSA	A10	R	B10				
010576	040000								
010577	040000	MOVD	MOR	P	R13	TST	SIL		
010578	040000								
010579	040000								
010580	040000								
010581	040000								
010582	040000								
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010601	040000								
010602	040000								
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010629	040000								
010630	040000								
010631	040000								

010632	100'61	0210	MOV	FD	Y	MP	STL	FLD WIPSC
010633	037'51	0211						
010634	000'00	0211	MOV	MOR	P	E13	PIL	IPSCC
010635	040'54	0211						
010636	037'40	0212						
010637	001'00	0212						
010638	100'00	0212	SURDA	MOR	A13	Y	TST	SIL
010639	124'40	0213						WIPSC-PSCC
010640	130'03	0213						
010641	040'00	0213	NOOP	RIL	JPZ	FLD	NEXTC	
010642	000'40	0214						
010643	000'20	0214						
010644	100'20	0214	MOVA	A13	Y	MPR	IPSCC ->	WIPSC
010645	034'42	0215						
010646	130'00	0215	MOV	FD	Y	MPR	FLD	PITCH
010647	000'00	0215						
010648	037'51	0216	MOVA	A14	Y	MPR	ICANDIDATE=PITCH	
010649	000'00	0216						
010650	034'42	0217						
010651	100'00	0217	NEXTC	A11	RAY	R11	TST	SIL
010652	000'00	0217						
010653	104'40	0220						
010654	111'01	0220	NOOP	RIL	JH	FLD	RIGUP	
010655	000'00	0220						
010656	000'40	0221	MOV	FD	Y	MPR	FLD	PITCH
010657	000'00	0221						
010658	037'51	0222						
010659	000'00	0222	MOV	FD	Y	MPR	STL	FLD WIPSC
010660	037'51	0222						
010661	000'00	0223						
010662	040'54	0223	MOV	MOR	R	R13	RIL	IPITCH WINNER
010663	037'40	0224						
010664	001'00	0224						
010665	100'00	0224	MOV	MOR	Y	TST	STL	ITEST WINNING SCORE
010666	037'40	0225						
010667	000'01	0225						
010668	000'00	0225	NOOP	RIL	JH	FLD	PHISS	INEG. SCORE=WHISS
010669	037'40	0225						
010670	000'40	0226						
010671	100'20	0226	SURDA	A13	FD	Y	TST	SIL
010672	114'50	0227						FLD 108.
010673	130'01	0227						
010674	040'00	0227	NOOP	RIL	JPZ	FLD	PHISS	IPITCH TON LOW
010675	000'40	0230						
010676	000'20	0230						
010677	100'32	0230	NOOP	JP	FLD	POVEN		
010678	000'40	0231						
010679	000'10	0231						
010680	060'36	0231						
010681	037'51	0232	PHISS	MOV	FD	Y	MPR	FLD LOCK
010682	000'00	0232						
010683	000'53	0232						
010684	117'52	0233	CSD	FD	Y	MPR	FLD 1	ISFT LOCK
010685	000'00	0233						

010723	000001	0233	MOVD	FD	Y	MR	FID PITCH	
010724	037151	0234						
010725	000000	0234						
010726	000102	0234						
010727	042142	0235	CLR	Y	MR	JP	FID FIXPLT	PITCH=0
010730	000010	0235						
010731	000140	0235						
010732	037151	0236	MOVD	FD	Y	MR	FID LOCK	
010733	000000	0236						
010734	000053	0236						
010735	042142	0237	CLR	Y	MR	ICLEAR LOCK		
010736	000000	0237						
010737	000000	0237						
			PAGE					

ADDRESS	INSTR	OPERANDS	COMMENT
010740	FIXPVT MOVE	FD Y	PAR FLD PITCH
010741			
010742	MOV	FD Y	PAR STL FLD VARMASK
010743			
010744	MOV	FOR SU	R17 TST
010745			IPITCHEN ?
010746	CMPL	MOR Y	PAR TST JN/ FLD +2
010747			JUMP IF RUZZ
010748	MOV	FD SU	R17 FLD PTRN
010749			
010750	MOV	FD Y	PAR FLD COBPIR
010751			
010752	NOOP	R1L JN	FLD +2
010753			
010754	ORCA	FD A17 F	R17 FLD 1
010755			SET SAMP BIT
010756	MOV	MOR R	R13
010757			OUTPUT BUFFER POINTER
010758	ADDD	FD A13 Y	PAR FLD OP1F+2+2+3
010759			
010760	INCA	A13 RAY	R13 TST STL
010761			
010762	MOVA	A17 Y	PAR R1L JN
010763			FLD +2
010764	CSD	FD R	R13 FLD 2+2+3
010765			
010766			
010767			
010768			
010769			
010770			
010771			
010772			
010773			
010774			
010775			
010776			
010777			
011000			
011001			
011002			
011003			
011004			
011005			
011006			

```

IR17=WORDX      0.1.....PVAL
IR18=PTR        POINTER TO OUTPUT BUFFER
IR19=REG        REGISTER
IR20=TABLE      TABLE INCREMENT
IR21=TABLE      TABLE ADDRESS
IR22=TABLE      TABLE ADDRESS
IR23=TABLE      TABLE ADDRESS
IR24=TABLE      TABLE ADDRESS
IR25=TABLE      TABLE ADDRESS
IR26=TABLE      TABLE ADDRESS
IR27=TABLE      TABLE ADDRESS
IR28=TABLE      TABLE ADDRESS
IR29=TABLE      TABLE ADDRESS
IR30=TABLE      TABLE ADDRESS
IR31=TABLE      TABLE ADDRESS
IR32=TABLE      TABLE ADDRESS
IR33=TABLE      TABLE ADDRESS
IR34=TABLE      TABLE ADDRESS
IR35=TABLE      TABLE ADDRESS
IR36=TABLE      TABLE ADDRESS
IR37=TABLE      TABLE ADDRESS
IR38=TABLE      TABLE ADDRESS
IR39=TABLE      TABLE ADDRESS
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IR41=TABLE      TABLE ADDRESS
IR42=TABLE      TABLE ADDRESS
IR43=TABLE      TABLE ADDRESS
IR44=TABLE      TABLE ADDRESS
IR45=TABLE      TABLE ADDRESS
IR46=TABLE      TABLE ADDRESS
IR47=TABLE      TABLE ADDRESS
IR48=TABLE      TABLE ADDRESS
IR49=TABLE      TABLE ADDRESS
IR50=TABLE      TABLE ADDRESS
IR51=TABLE      TABLE ADDRESS
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IR90=TABLE      TABLE ADDRESS
IR91=TABLE      TABLE ADDRESS
IR92=TABLE      TABLE ADDRESS
IR93=TABLE      TABLE ADDRESS
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IR95=TABLE      TABLE ADDRESS
IR96=TABLE      TABLE ADDRESS
IR97=TABLE      TABLE ADDRESS
IR98=TABLE      TABLE ADDRESS
IR99=TABLE      TABLE ADDRESS
IR100=TABLE     TABLE ADDRESS

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011007	037151	0255	SRTCP	MOVE	FD	Y	MAP	FIL MASK
011010	000000	0255						
011011	000002	0255						
011012	042000	0256	CLR	R		R14		
011013	001000	0256						
011014	000000	0256						
011015	037000	0257	MOVE	MOR	P	R10		MAPK ADDRESSES
011016	001000	0257						
011017	000000	0257						
011018	037151	0260	POVD	FD	Y	MAP	FIL CTRL	
011019	000000	0260						
011020	000000	0260						
011021	000000	0260						
011022	000000	0260						
011023	042000	0261	CLR	R		R17		MAPK ADDRESSES
011024	001000	0261						
011025	000000	0261						
011026	037000	0262	POVD	MOR	R	P7		MAPK ADDRESSES
011027	000000	0262						
011028	000000	0262						
011029	000000	0262						
011030	000000	0262						
011031	000000	0263	CONXT	ADDEA	FD	A17	Y	MAP FIL E
011032	170000	0263						
011033	000000	0263						
011034	020000	0264	CMFA	A14	RAY	R14	YST	SIL
011035	141001	0264						
011036	000000	0264						
011037	037000	0265	MOVE	MOR	P	R16	RIL	JPZ FIL +2
011038	000000	0265						
011039	000000	0265						
011040	000000	0265						
011041	000000	0265						
011042	120000	0266						
011043	141000	0266	CSA	A16	R	R16		
011044	000000	0266						
011045	000000	0267	ADDAF	A7	P17	Y	MAP	DECODE TABLE ADDRESS
011046	000000	0267						
011047	000000	0267						
011048	000000	0267						
011049	000000	0267						
011050	141001	0270	ADDAF1	A10	P17	Y	MAP	MAPK ADDRESS+1
011051	141001	0270						
011052	000000	0270						
011053	037000	0271						
011054	000000	0271	POVD	MOR	P	R11	RIL	TOP OF TABLE+1
011055	100000	0271						

ADDR	INSTR	OP	REG	COND	DATA	COMMENT
011056	LD	R1				
011057	LD	R2				
011058	LD	R3				
011059	LD	R4				
011060	LD	R5				
011061	LD	R6				
011062	LD	R7				
011063	LD	R8				
011064	LD	R9				
011065	LD	R10				
011066	LD	R11				
011067	LD	R12				
011068	LD	R13				
011069	LD	R14				
011070	LD	R15				
011071	LD	R16				
011072	LD	R17				
011073	LD	R18				
011074	LD	R19				
011075	LD	R20				
011076	LD	R21				
011077	LD	R22				
011078	LD	R23				
011079	LD	R24				
011080	LD	R25				
011081	LD	R26				
011082	LD	R27				
011083	LD	R28				
011084	LD	R29				
011085	LD	R30				
011086	LD	R31				
011087	LD	R32				
011088	LD	R33				
011089	LD	R34				
011090	LD	R35				
011091	LD	R36				
011092	LD	R37				
011093	LD	R38				
011094	LD	R39				
011095	LD	R40				
011096	LD	R41				
011097	LD	R42				
011098	LD	R43				
011099	LD	R44				
011100	LD	R45				
011101	LD	R46				
011102	LD	R47				
011103	LD	R48				
011104	LD	R49				
011105	LD	R50				
011106	LD	R51				
011107	LD	R52				
011108	LD	R53				
011109	LD	R54				
011110	LD	R55				
011111	LD	R56				
011112	LD	R57				
011113	LD	R58				
011114	LD	R59				
011115	LD	R60				
011116	LD	R61				
011117	LD	R62				
011118	LD	R63				
011119	LD	R64				
011120	LD	R65				
011121	LD	R66				
011122	LD	R67				
011123	LD	R68				
011124	LD	R69				
011125	LD	R70				
011126	LD	R71				
011127	LD	R72				
011128	LD	R73				
011129	LD	R74				
011130	LD	R75				
011131	LD	R76				
011132	LD	R77				
011133	LD	R78				
011134	LD	R79				
011135	LD	R80				
011136	LD	R81				
011137	LD	R82				
011138	LD	R83				
011139	LD	R84				
011140	LD	R85				
011141	LD	R86				
011142	LD	R87				
011143	LD	R88				
011144	LD	R89				
011145	LD	R90				
011146	LD	R91				

011147	117350	0315	CSC	FD	R	R13	FLD 2*P+3
011150	001700	0315					
011151	000033	0315					
011152	037151	0316	MOVL	FD	Y	MAR	FLD PVAL
011153	000000	0316					
011154	000040	0316					
011155	104340	0317	INCA	A17	R	P17	
011156	171700	0317					
011157	000000	0317					
011160	025140	0320	SUPCaj	MOR	A17	Y	TST SIL
011161	170001	0320					
011162	040000	0320					
011163	000140	0321	MOOP	RIL	JM2	FLD CONXT	
011164	000050	0321					
011165	100063	0321					
011166	037151	0322	MOVQ	FD	Y	MAR	FLD COBPIR
011167	000000	0322					
011170	000057	0322					
011171	034142	0323	MOVA	A13	Y	MER	
011172	130000	0323					
011173	000000	0323					

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IRIOL4 FLOATING POINT ROUTINE

011174	037151	MOVQ	FD	Y	MAR	FLD R0+P+1	:LSR R(0)	
011175	000000							
011176	000065	MOVQ	FD	Y	MAR	STL FLD RS	:MSR R(0)	
011177	037151							
011200	000000							
011201	000050	MOVQ	MOR	Q	RTI			
011202	037140							
011203	000000							
011204	100000	MOVQ	MOR	P	P17			
011205	037140							
011206	001700							
011207	000000	CSF	FD	R	R16	FLD 15.	:MAXIMUM SHIFT OF 16.	
011210	117150							
011211	001000							
011212	000017	MOVQ	A17	SUD	R17			
011213	034040							
011214	117100							
011215	000000	MOVQ	A17	Y	TST	STL		
011216	034040							
011217	170001							
011220	000000	INCA	A15	PAY	R16	TST JN	FLD SCLEND	
011221	100040							
011222	161041							
011223	000035							
011224	000040	MOVQ	A17	SUD	R17	JN	FLD 0-2	
011225	117140							
011226	000032							
011227	120040	SCLEND CSA	A15	P	R16	RTL		
011230	100000							
011231	100000							
011232	100050							
011233	161001							
011234	000016	SURAI	FD	A16	P	P16	TST STL FLD 14.	:SCALE FACTOR - 0.1M
011235	037151							
011236	000000	MOVQ	FD	Y	MAR	FLD <77777>	:0= SCALF LP ZERO	
011237	001000							
011240	034040	MOVQ	A17	SR	B17	RTL J7	FLD SCLEFN	:1-15.= SCALE UP 1.
011241	117130							
011242	100055							
011243	037151	MOVQ	FD	Y	MAR	STL FLD RS		
011244	000000							
011245	000050	ANDEA	MOR	A17	Y	MAR	RTL	:REMOVE SIGN EXTENSION AND STORE R11
011246	000042							
011247	170000							
011250	100000							
011251	117150	CSC	FD	R	P14	FLD P-1		
011252	001000							
011253	000013							
011254	000051	OSLIP	ADDQA	FD	A14	Y	MAR	FLD RS+P+1 :ISP
011255	100000							
011256	000001							

ADDR	FD	A14	Y	PAR	SIL	FID	RC+P	:RSP
011257	ADD							
011260	MOV	G	PIL					
011261	MOV	R	R17					
011262	MOV							
011263	MOV							
011264	MOV							
011265	MOV							
011266	MOV							
011267	MOV							
011270	MOV							
011271	MOV							
011272	MOV							
011273	MOV							
011274	MOV							
011275	MOV							
011276	MOV							
011277	MOV							
011300	MOV							
011301	MOV							
011302	MOV							
011303	MOV							
011304	MOV							
011305	MOV							
011306	MOV							
011307	MOV							
011310	MOV							
011311	MOV							
011312	MOV							
011313	MOV							
011314	MOV							

PAGE

LEVENSON RECEPTION

```

R17=AV
R16=APX
R15=ENT
R14=OV
R13=VUM
R12=DFH
R11=DUOT
R10=TFPH
R7=TFEP
R6=TFEP

```

LEVENSON	MOVU	FD	Y	PAR	FLR	RS	
011315	037151	0357					
011316	000000	0357					
011317	000050	0357					
011320	117250	0360	P	R14	FID	1	
011321	001400	0360					
011322	000000	0360	R	R12	TST	SIL	:FIRST OFN
011323	037240	0361					
011324	001201	0361					
011325	000000	0361	Y	PAR	FID	RS+1	
011326	037151	0362					
011327	000000	0362					
011330	000051	0362	R	P17	JP	FLU	APORT : APORT IF DFH < 0
011331	042740	0363					
011332	000740	0363					
011333	100057	0363	R	R13	TST	SIL	:FIRST NUM
011334	037240	0364					
011335	001201	0364					
011336	000000	0364	R	P10	RIL	JP2	FID +2 :MAG NUM
011337	034240	0365					
011340	131220	0365					
011341	100267	0365					
011342	124240	0365	P	B10			
011343	101200	0365					
011344	000000	0365					
011345	111340	0367	P	A12	TST	SIL	JP5 FLN DIVIDE
011346	121215	0367					
011347	040467	0367					
011350	024242	0370	SN	F7	MPR		:STOPF FIRST K
011351	110700	0370					
011352	000000	0370					
011353	024240	0371	SN	P7			
011354	070700	0371					
011355	000000	0371					
011356	037151	0372	Y	PAR	FID	AS	
011357	000000	0372					
011360	000065	0372	Y	WER			:STORE FIRST A
011361	024142	0373					
011362	070000	0373					
011363	000000	0373					
011364	034240	0374	R	R16			
011365	141200	0374					

Address	OpCode	OpName	OpType	OpSize	OpFlags	OpComments
011366	000000	ADDL A16	Y	16	PS+2	
011367	000000	CLL R	B17			
011370	000000	CLL R	P10	STL		
011371	000000	ADDCA	FD	A17	Y	MAC FLU AS
011372	000000	MOVL	Y	PCD		
011373	000000	MOVL	Y	DDR		
011374	000000	INCB	B17	R		
011375	000000	MOOP	Y			
011376	000000	ADDOL	FD	A16	Y	MAC FLU RS+1
011377	000000	DECA	A16	PAI	P16	TEST
011378	000000	ADDOL	UP	A10	P	B10 JPZ FLU NUMLUP
011379	000000	ADDOL	FD	A14	Y	MAC RTL FLU RS+3
011380	000000	MOVA	A10	SU	R10	
011381	000000	MOVA	A10	SU	P10	
011382	000000	SURDA	MOR	A10	P	R10 :NUMFPATOR
011383	000000	INCB	B14	P		
011384	000000	MOVA	A11	Y	PCD	STL
011385	000000	MOVA	A13	Y	MOR	:OLD K * OLD NUM
011386	000000	MOVA	A12	P	P7	:SAVE OLD DPA

011457	000000	MOVA	A10	R	R13	TST	:NEW NUM -> CLR NUM
011460	034340						
011461	101101	MOOP	JPZ	FLD +2			
011462	000000						
011463	000140						
011464	000020						
011465	000023	CSA	A10	P	P10	:MAC NUM	
011466	124340						
011467	101000						
011470	000000	MOVD	FO	Y	PAR	FLD E	
011471	037151						
011472	000000						
011473	000103	SURAI	A12	UP	R	R12	MRK TST :NEW DEN
011474	115332						
011475	121001						
011476	000000						
011477	000140	MOOP	RIL	UN	FLD	ABOPT	
011500	000040						
011501	100057						
011502	111240	SUBBA	B10	A12	F	TST	SIL JPS FLD DIVIDE
011503	121015						
011504	040067						
011505	030042	MOVA	A11	SD	P10	MRP	:STORE K
011506	111000						
011507	000000						
011510	115150	SUBAR	A14	FO	Y	TST	SIL FLD P-2
011511	140001						
011512	040012						
011513	030040	MOVA	A10	SD	P10	RIL	JPZ FLD UNSCAL
011514	101020						
011515	100006						
011516	000051	ADDDA	FO	A14	Y	PAR	FLD AS+1
011517	140000						
011520	000066						
011521	030042	MOVA	A10	Y	MRP	:STORE A	
011522	100000						
011523	000000						
011524	040040	PRET	CLR	R	R17	:AX	
011525	001700						
011526	000000						
011527	030040	MOVA	A14	R	P16	:APX	
011530	141000						
011531	000000						
011532	000051	ADDDA	FO	A16	Y	PAR	FLD AS
011533	100000						
011534	000065						
011535	110050						
011536	141000						
011537	000002	SURAI	A15	FC	SD	R15	FLU 2 : (APX-2)/2 -> CNT
011540	030043						
011541	110000	MOVA	A11	Y	MRP	SIL	:K -> MCD
011542	040000						
011543	037040						
011544	000700	MOVD	MOR	R	P7		
011545	000000						
011546	030046	MOVA	A7	R	P5	MPR	:K*A(APX) SAVF PRESENT A(APX)
011547	070000	TIUPL					

011550	000000	0442	ADDDA	FD	A16	Y	PAR	FLD AS-1	
011551	000051	0443							
011552	100000	0443	ADDDA	FD	A17	Y	MAP	FLD AS	
011553	000064	0443							
011554	000051	0444							
011555	100000	0444	MOVDD	MOR	P	R7	:SAVE NEXT A(APX)		
011556	000065	0444							
011557	037040	0445							
011560	000000	0445							
011561	000000	0445							
011562	100040	0446	INCB	B17	P				
011563	001000	0446							
011564	000000	0446	MOVDD	UP	P	R10			
011565	037030	0447							
011566	001000	0447							
011567	000000	0447	MOVDD	MOR	Y	MPR	:K=A(AX)		
011570	000000	0450							
011571	000000	0450							
011572	000000	0450	SUBDA	MOR	A10	Y	PRR	:A(AX)-K=A(APX) -> A(AX)	
011573	100042	0451							
011574	100000	0451							
011575	000000	0451	ADDDA	FD	A16	Y	MAP	FLD AS	
011576	000051	0452							
011577	100000	0452							
011600	000065	0452	DECB	B15	P				
011601	010040	0453							
011602	001000	0453							
011603	000000	0453	DECA	A15	RAY	R15	TST		
011604	014040	0454							
011605	101001	0454							
011606	000000	0454							
011607	100032	0455	SUBAR	AS	IP	Y	PRR	JPZ FLD ILUPL :A(APX)-K=A(AX) -> A,APX,	
011610	000020	0455							
011611	000042	0455	MOOP	RIL	JP	FLD ILUPL			
011612	000040	0455							
011613	000010	0456							
011614	100070	0456	PAGE						

011615	037151	0457	ABORT	MOVCL	FD	Y	MAR	FLC E
011616	000000	0457						
011617	000103	0457	MOVA	A7	Y	MAR		:USF OLD F
011620	030142	0460						
011621	070000	0460	SUBAL	A14	FN	F	B14	FLD P-2
011622	000000	0460						
011623	110750	0461						
011624	141400	0461						
011625	000112	0461						
011626	000151	0462	ADDOA	FD	A14	Y	MAR	FLD KSAP-1
011627	140000	0462						
011630	000117	0462	INCA	A14	RAY	R14	TST	STL :CLFAR REMAINING MS
011631	100740	0463						
011632	141401	0463						
011633	040000	0463	CLP	Y	MAR	R14	JP	FLD -2
011634	040142	0464						
011635	000040	0464						
011636	100462	0464						
011637	037750	0465	MOVCL	FD	R	R14	FLD P-2	
011640	001400	0465						
011641	000012	0465						
011642	040740	0465	CLP	R	R11	JP	FLD UNSCAL	
011643	001110	0465						
011644	000506	0465						

:DIVIDF SUBROUTINE

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:NUM-REF IN R10 WITH TST PERFORMED
:REV IN R12
:COUNT IN R11

```

011645	034740	0467	DIVINE	MOVA	A10	SU	R10	R14	JP2	FLD ABORT
011646	101020	0467								
011647	100457	0467								
011649	037151	0470	MOVCL	FD	Y	MAR	FLD	<77777>		
011651	000000	0470								
011652	001000	0470	MOVCL	FD	R	R11	FLC	1		
011653	037750	0471								
011654	001100	0471								
011655	000001	0471								
011656	001740	0472	ADDOA	A12	R10	P	TST	SIL		
011657	101001	0472								
011660	040000	0472								
011661	037740	0473	DIVIMP	MOVB	B10	SU				
011662	001000	0473								
011663	000000	0473	MOVB	B11	SU	TST	JP2	FLD Q1		
011664	037740	0474								
011665	000177	0474								
011667	001740	0475	ADDOA	A12	R	R10	TST	JP2	FLD DIVLUP	
011670	101021	0475								
011671	000073	0475	MOVA	A13	Y	TST	JP	FLD DIVEND+1		
011672	034740	0475								

IPS INTERRUPT SERVICE ROUTINE

012002	037751	PSC	MOV	FD	Y	WIR	FLR	OPITCT	:- (PRTS-1)).....0
012003	000000								
012004	000447		MOV	FD	Y	PAR	FLD	OPRDX	00.....0+1
012005	037751								
012006	000000		MOV	MOR	R	PC			
012007	000460								
012010	037740		INCA	A0	RAY	R0	TST		
012011	000000								
012012	000000		INCD	MOR	R	P1	JN	FLD	PSEFT
012013	100000								
012014	000001		MOV	FD	Y	PAR	FLD	PVAL	
012015	000000								
012016	107740		MOV	FD	Y	PAR	FLD	OPRDX	
012017	000000								
012018	000470		SUBD	MOR	A1	Y	TST	IP+2-OPRDX	
012019	037751								
012020	000000		MOV	A1	Y	MEM	JNZ	FLD	NOTFPM
012021	037751								ISFT OUPDX
012022	000000								
012023	000440		CLR	R	P1	M3P	IRESET	OPRDX	
012024	000000								
012025	000000		MOV	FD	Y	WIR	FLD	CNT	
012026	000460								
012027	100000		CLR	Y	MRR	IRESET	CNT		
012028	000000								
012029	000000		MOV	FD	Y	WIR	FLD	CNT	
012030	037751								
012031	000000		CLR	Y	MRR	IRESET	CNT		
012032	000442								
012033	000000								
012034	000455								
012035	000000								
012036	000442								
012037	000000								
012038	037751								
012039	000000								
012040	000000								
012041	000000								
012042	000461								
012043	000000								
012044	000000								
012045	117740								
012046	000000								
012047	000000								
012048	000431								
012049	000451								
012050	000000								
012051	000432								
012052	000452								
012053	100440								
012054	000440								
012055	000440								
012056	000000								
012057	000451								
012058	000000								
012059	000000								
012060	000000								
012061	000000								
012062	000442								
012063	000440								
012064	000443								
012065	117740								
012066	000000								

012067	000046	0047	ANDCA	FD	A2	Y	MAF	FLD RRUU+3,p+2	
012070	000051	0050							
012071	020000	0050	INCA	A2	RAY	R2	TST		
012072	000047	0050							
012073	100000	0051							
012074	020001	0051	CLP	Y	MRP	JN	FLD --2		
012075	000000	0051							
012076	040042	0052							
012077	000040	0052	MOVD	FD	Y	MAR	FLD POSTFG		
012100	000050	0052							
012101	037051	0053	MOVA	A2	Y	MRB	:SET START FLAG		
012102	000000	0053							
012103	000050	0053							
012104	030042	0054							
012105	020000	0054							
012106	000000	0054							
012107	037051	0055	MOVD	FD	Y	MAR	FLD NRITS		
012110	000000	0055							
012111	000043	0055							
012112	037051	0056	MOVD	FD	Y	MAP	FLD ORPTX	:--2,p-3,....0	
012113	000000	0056							
012114	000045	0056	ADDDA	MOR	A1	Y	PAR		
012115	000041	0057							
012116	010000	0057	MOVE	MOR	P	R1			
012117	000000	0057							
012120	037040	0060	MOVD	MOR	R	R0	:NEW NRITS		
012121	000000	0060							
012122	037040	0061							
012123	000000	0061							
012124	000000	0061							
012125	000000	0062	ADDDA	FD	A1	Y	MAP	FLD ORUF+2,p+3	
012126	000051	0062							
012127	010000	0062							
012130	000055	0062							
012131	100040	0063	INCA	A1	RAY	R1	TST		
012132	010001	0063							
012133	000000	0063							
012134	037045	0064	MOVE	MOR	Y	FS	JN	FLD --2	:NEXT WORD OUT
012135	000040	0064							
012136	000066	0064							
012137	117050	0065	CSP	FD	P	R1	FLD 2,p+3	:RESET ORPTX	
012140	000000	0065							
012141	000033	0065	MOVD	FD	Y	MAP	FLD ORPTX		
012142	037051	0066							
012143	000000	0066							
012144	000045	0066	MOVA	A1	Y	MRB	:STORE ORPTR		
012145	030042	0067							
012146	010000	0067							
012147	000000	0067	PERF	MOVD	FD	Y	MAP	FLD ORITCY	
012150	037051	0070							
012151	000000	0070							
012152	000047	0070							
012153	030042	0071	MOVA	A0	Y	MRB			
012154	000000	0071							
012155	000000	0071							
012156	000000	0072	NOOP	Y					
012157	000040	0072							

012160	000000	0072
012161	000140	0073
012162	000012	0073
012163	100000	0073

NOOP SBA PTL

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ISPC INTERRUPT SERVICE ROUTINE

012163	037400	0574	SOC	MOVQ	SP	R	RC	:RIT-RT-INT SYNC ROUTINE
012165	000000	0574						
012167	000000	0574						
012170	000000	0575		ANDQ	FD	A0	R	B0 FLU 37E
012171	000000	0575						
012172	060000	0576		YORDA	FD	A0	Y	TST FLU PTRM01 :LOOK FOR PATTERN
012173	000001	0576						
012174	000012	0576		CLR	R	R0	JNZ	FID SPSYMT
012175	040000	0577						
012176	000050	0577						
012177	000032	0577		MOVQ	FD	Y	PAR	FID NP0 :PATTERN EQUINO
012200	037151	0600						
012201	000000	0600						
012202	000062	0600						
012203	037151	0601		MOVQ	FD	Y	PAR	FID LOCN0
012204	000000	0601						
012205	000063	0601						
012206	037151	0602		MOVQ	MOR	Y	TST	
012207	000001	0602						
012210	000000	0602		MOVQ	MOR	P	P1	JP FLU HUNTC
012211	037151	0603						
012212	000000	0603						
012213	000012	0603						
012214	037151	0604		MOVL	FD	Y	PAR	FID LCCSAV0
012215	000000	0604						
012216	000064	0604						
012217	037151	0605		POVD	MOR	Y	PAR	:LOCN -> LCCSAV
012220	000000	0605						
012221	000000	0605						
012222	037151	0605		MOVQ	FD	Y	PAR	FID NP
012223	000000	0605						
012224	000062	0606						
012225	117152	0607		CSD	FD	Y	PAR	FID FPM :SET FRAME COUNTER
012227	000000	0607						
012228	000006	0607		MOVQ	FD	Y	PAR	FID LCCGUD0
012230	037151	0610						
012231	000000	0610						
012232	000065	0610						
012233	100152	0611		INCA	A0	Y	PAR	JP FLU SPSYPT
012234	000010	0611						
012235	000032	0611						
012236	037151	0612		HUNTC	POVD	FD	Y	PAR
012237	000000	0612						
012240	000064	0612						
012241	000150	0613		NOOP	Y			
012242	000000	0613						
012243	000000	0613						
012244	000150	0614		XORDA	MOR	A1	Y	TST :LOCN = LCCSAV ?
012245	010001	0614						
012246	000000	0614						
012247	040000	0615		CLP	R	B0	JNZ	FID SPSYMT :JUMP IF LOCN PAR

012250	000050	0415	MOVCL	FD	Y	MAR	FID No	
012251	000032	0415						
012252	037151	0416						
012253	000000	0416						
012254	000062	0416	MOVL	FD	Y	MAR	FID LOGGUD	
012255	037151	0417						
012256	000000	0417						
012257	000064	0417	INCD	MOR	R	R1	YST	INFRAMENT NR
012260	107140	0420						
012261	000101	0420						
012262	000000	0420						
012263	104142	0421	INCA	A0	Y	MAR	U7	FID +3
012264	000030	0421						SET LOGGUD
012265	000024	0421						
012266	037151	0422	MOVD	FD	Y	MAR	FID NR	
012267	000000	0422						
012270	000062	0422						
012271	034142	0423	MOVA	A1	Y	MAR	UP	FID SPSYRT
012272	000010	0423						STORE NR
012273	000032	0423						
012274	037151	0424	RFSYMC MOVD	FD	Y	MAR	FID IWRDX	
012275	000000	0424						
012276	000064	0424						
012277	042142	0425	CLR	Y	MAR			
012300	000000	0425						
012301	000000	0425						
012302	037151	0426	MOVL	FD	Y	MAR	FID IRTCT	
012303	000000	0426						
012304	000046	0426						
012305	042142	0427	CLP	Y	MAR			
012306	000000	0427						
012307	000000	0427						
012310	037151	0430	MOVD	FD	Y	MAR	FID LOGGUD	
012311	000000	0430						
012312	000065	0430						
012313	042142	0431	CLR	Y	MAR			
012314	000000	0431						
012315	000000	0431						
012316	037151	0432	SpSYMC MOVD	FD	Y	MAR	FID LOGN	
012317	000000	0432						
012320	000063	0432						
012321	000140	0433	MOOP	Y				
012322	000000	0433						
012323	000000	0433						
012324	107142	0434	INCD	MOR	Y	MAR		END OF SYNCH ROUTINE
012325	000000	0434						
012326	000000	0434						
012327	037151	0435	MOVD	FD	Y	MAR	FID IRTCT	-(NRITS-1).....0
012330	000000	0435						
012331	000046	0435						
012332	037151	0436	MOVD	FD	Y	MAR	FID IWRDX	0.....0+1
012333	000000	0436						
012334	000064	0436						
012335	037140	0437	MOVD	MOR	P	R0		
012336	000000	0437						
012337	000000	0437	INCA	A0	RAY	R0	YST	
012340	104140	0440						

012432	010001	0463	MOVA	A1	Y	WAR	JNZ	FLD SPFT2	
012433	000000	0463							
012434	037142	0464							
012435	000050	0464	CLF	R	B1	PRR	:RESET	INDEX, :IF, FOLME	
012436	01755	0464							
012437	042342	0465							
012440	000100	0465							
012441	000000	0465	MOVE	FD	Y	WAR	FLC PINPG		
012442	037151	0465							
012443	000000	0465							
012444	000067	0465	CLR	Y	PRR	:RESET	PINGPONG		
012445	042142	0467							
012446	000000	0467							
012447	000000	0467	MOVE	FD	Y	WAR	FLD NPITCH		
012450	037151	0470							
012451	000000	0470							
012452	000120	0470	MOVE	FD	Y	WAR	FLC PIT		
012453	037151	0471							
012454	000000	0471							
012455	000070	0471	MOVE	MOR	Y	WAR	:NPITCH TO PIT		
012456	037142	0472							
012457	000000	0472							
012460	000000	0472	MOVE	FD	Y	WAR	FLD BNPTT		
012461	037151	0473							
012462	000000	0473							
012463	000004	0473	MOVE	FD	Y	WAR	FLC NPITCH		
012464	037151	0474							
012465	000000	0474							
012466	000120	0474							
012467	037142	0475	DECD	MOR	R	P2	WAR	:NPITCH-1 TO NPITCH AND P2	
012470	000000	0475							
012471	000000	0475	ANDDA	FD	A2	R	B3	TST	FLD 160
012472	045350	0475							
012473	037001	0475							
012474	000160	0475	NOOP	JNZ	FLD	0+2			
012475	000140	0477							
012476	000050	0477							
012477	000001	0477	DECA	A3	R	P3	WAR	JP	FLD ISHISS
012500	014342	0700							:--1 TO NPITCH
012501	030310	0700							
012502	000012	0700	ADDDA1	FD	A2	Y	WAR	FLD RTPDN-1A.	:IS RUZ7
012503	105151	0701							
012504	020000	0701							
012505	037116	0701	MOVE	FD	Y	WAR	FLC BNE		
012506	037151	0702							
012507	000000	0702							
012510	000005	0702	MOVE	MOR	Y	PCD			
012511	037143	0703							
012512	000000	0703							
012513	000000	0703	MOVE	MOR	Y	MPR			
012514	037146	0704							
012515	000000	0704							
012516	000000	0704	MOVE	FD	Y	WAR	FLD NHAMP		
012517	037151	0705							
012520	000000	0705							
012521	000071	0705	MOVE	FD	Y	WAR	FLC HAMP		
012522	037151	0705							

012614	000000	0731	MOVU	FD	Y	MAR	FLD INT-1		
012615	000074	0731							
012616	000152	0732							
012617	000000	0732							
012620	000047	0732	MOVU	FD	R	R2	FLD P-1		
012621	000050	0733							
012622	000000	0733							
012623	000013	0733							
012624	000051	0734							
012625	000000	0734							
012626	000122	0734							
012627	000051	0735	ADDU	FD	A2	Y	MAR	FLD NF+1	EXCP DATA TO TYPE
012630	000000	0735							
012631	000054	0735							
012632	000040	0735	MOVU	MOR	SD	R3	MAR	FLD NF+1	EXCP DATA TO TYPE
012633	000000	0735							
012634	000000	0735							
012635	000051	0737	ADDU	FD	A2	Y	MAR	FLD BNF+1	
012636	000000	0737							
012637	000006	0737							
012640	000051	0740	ADDU	FD	A2	Y	MAR	FLD NF+1	
012641	000000	0740							
012642	000022	0740							
012643	000042	0741	MOVU	MOR	SD	R4	MAR	FLD NF+1	EXCP DATA TO TYPE
012644	000000	0741							
012645	000000	0741							
012646	000051	0742	ADDU	FD	A2	Y	MAR	FLD DF+1	
012647	000000	0742							
012650	000037	0742							
012651	000040	0743	FECA	A2	PAY	P2	TST		
012652	000001	0743							
012653	000000	0743							
012654	120042	0744	SUPAF	A4	R3	Y	MAR	JP2	FLD XFLUP
012655	000020	0744							
012656	000034	0744							
012657	000051	0745	ENDSYN MOVU	FD	Y	MAR	FLD LOGUD	END-OF-FRAME SYNC CODE	
012660	000000	0745							
012661	000046	0745							
012662	000051	0745	MOVU	FD	Y	MAR	FLD LOGN		
012663	000000	0745							
012664	000063	0745							
012665	000040	0747	MOVU	MOR	Y	TST			
012666	000001	0747							
012667	000000	0747							
012670	000042	0750	CLR	Y	MAR	JP2	FLD .+3	CLEAR LOGN	
012671	000030	0750							
012672	000053	0750	MOVU	FD	Y	MAR	FLD LOGUD		
012673	000051	0751							
012674	000000	0751							
012675	000046	0751							
012676	000042	0752	CLR	Y	MAR	JP	FLD SPRET2		
012677	000010	0752							
012701	000055	0752							
012702	000051	0753	MOVU	FD	Y	MAR	FLD NP		
012703	000000	0753							
012704	000062	0753	CLR	Y	MAR				

012705	000000	SPRFT2	MOVQ	FD	Y	WAR	FLC	NRITS	
012706	000000								
012707	037151								
012710	000000								
012711	000043								
012712	000040		NOOP	Y					
012713	000000								
012714	000000		ADDDA	MOR	A1	Y	MAP		
012715	000041								
012716	010000								
012717	000000								
012720	037151		MOVQ	FD	Y	MAP	FLC	INITCT	
012721	000000								
012722	000046		MOVQ	MOR	Y	WAR	JP	FLC SPFT11+2	INFW NRITS
012723	037142								
012724	000010								
012725	000064								
012726	037151		SPRFT1	MOVQ	FD	Y	WAR	FLD	INITCT
012727	000000								
012730	000046								
012731	034042		MOVA	A0	Y	WAR			
012732	000000								
012733	000000								
012734	000040								
012735	000000		NOOP	Y					
012736	000000								
012737	000040								
012740	000012		NOOP	SBR	RIL				
012741	100000								
012742	037151		ISPT	MOVQ	FD	Y	WAR	FLD	RMPT1
012743	000000								
012744	000004								
012745	034040		MOVA	A2	SD	EP			
012746	020000								
012747	000000								
012750	034042		MOVA	A2	Y	WAR	JP	FLD	SPFT3
012751	020010								
012752	000060								
			PAGE						

15/1-1/A CONVERTER INTERRUPT SERVICE ROUTINE

012753	037151	0771	AN,DA	MOVD	FD	Y	M/R	FLC SP,OUT
012754	000000	0771						
012755	000075	0771		MOVD	FD	Y	M/R	FLC SP,IN
012756	037151	0772						
012757	000000	0772						
012760	000076	0772		MOVD	MOR	Y	0AC	
012761	037144	0775						
012762	000000	0775						
012763	000000	0773		MOVD	ADC	Y	M/R	
012764	037112	0774						
012765	000000	0774						
012766	000000	0774						

16/1-1/B DOUBLE PRECISION CORRELATOR

012767	037151	0775	WIN,DP	MOVD	FD	Y	M/R	FLC CNT	
012770	000000	0775							
012771	000061	0775		MOVD	FD	R	FD	FLD N/2-1	
012772	037150	0775							
012773	000000	0775							
012774	000116	0775		SUB,AL	A0	MOR	Y	TEST	:N/2-1-CNT
012775	110140	0777							
012776	000001	0777							
012777	000000	0777		MOVD	MOR	R	P0	JPZ	FLD +2
013000	037140	1000							:FINC WINDOW HALF
013001	000020	1000							
013002	001002	1000							
013003	120150	1001		SUB,AL	FD	A0	P	BN	FLD N-1
013004	000000	1001							
013005	000235	1001							
013006	107142	1002		INCD	MOR	Y	M/R	:INCREMENT COUNTER	
013007	000000	1002							
013010	000000	1002							
013011	000151	1003		ADDD,AL	FD	A0	Y	M/R	FLD WINDOW
013012	000000	1003							:WINDOW ADDRESS
013013	001217	1003		MOVD	FD	Y	M/R	FLC SP,IN	
013014	037151	1004							
013015	000000	1004							
013016	000076	1004							
013017	037143	1005		MOVL	MOR	Y	MCD		
013020	000000	1005							
013021	000000	1005							
013022	037151	1006		MOVD	FD	Y	M/R	FLD PTR	:FETCH STACK POINTER
013023	000000	1006							
013024	000477	1006							
013025	037146	1007		MOVD	MOR	Y	M/R	:PERFORM WINDOW	
013026	000000	1007							
013027	000000	1007							
013030	037140	1010		MOVD	MOR	R	R1		
013031	000100	1010							

Address	OpCode	OpName	OpType	OpSize	OpFlags	OpComments
013032	ADD	ADD	ADD	ADD	ADD	
013033	ADD	ADD	ADD	ADD	ADD	
013034	ADD	ADD	ADD	ADD	ADD	
013035	ADD	ADD	ADD	ADD	ADD	
013036	ADD	ADD	ADD	ADD	ADD	
013037	ADD	ADD	ADD	ADD	ADD	
013038	ADD	ADD	ADD	ADD	ADD	
013039	ADD	ADD	ADD	ADD	ADD	
013040	ADD	ADD	ADD	ADD	ADD	
013041	ADD	ADD	ADD	ADD	ADD	
013042	ADD	ADD	ADD	ADD	ADD	
013043	ADD	ADD	ADD	ADD	ADD	
013044	ADD	ADD	ADD	ADD	ADD	
013045	ADD	ADD	ADD	ADD	ADD	
013046	ADD	ADD	ADD	ADD	ADD	
013047	ADD	ADD	ADD	ADD	ADD	
013048	ADD	ADD	ADD	ADD	ADD	
013049	ADD	ADD	ADD	ADD	ADD	
013050	ADD	ADD	ADD	ADD	ADD	
013051	ADD	ADD	ADD	ADD	ADD	
013052	ADD	ADD	ADD	ADD	ADD	
013053	ADD	ADD	ADD	ADD	ADD	
013054	ADD	ADD	ADD	ADD	ADD	
013055	ADD	ADD	ADD	ADD	ADD	
013056	ADD	ADD	ADD	ADD	ADD	
013057	ADD	ADD	ADD	ADD	ADD	
013058	ADD	ADD	ADD	ADD	ADD	
013059	ADD	ADD	ADD	ADD	ADD	
013060	ADD	ADD	ADD	ADD	ADD	
013061	ADD	ADD	ADD	ADD	ADD	
013062	ADD	ADD	ADD	ADD	ADD	
013063	ADD	ADD	ADD	ADD	ADD	
013064	ADD	ADD	ADD	ADD	ADD	
013065	ADD	ADD	ADD	ADD	ADD	
013066	ADD	ADD	ADD	ADD	ADD	
013067	ADD	ADD	ADD	ADD	ADD	
013068	ADD	ADD	ADD	ADD	ADD	
013069	ADD	ADD	ADD	ADD	ADD	
013070	ADD	ADD	ADD	ADD	ADD	
013071	ADD	ADD	ADD	ADD	ADD	
013072	ADD	ADD	ADD	ADD	ADD	
013073	ADD	ADD	ADD	ADD	ADD	
013074	ADD	ADD	ADD	ADD	ADD	
013075	ADD	ADD	ADD	ADD	ADD	
013076	ADD	ADD	ADD	ADD	ADD	
013077	ADD	ADD	ADD	ADD	ADD	
013078	ADD	ADD	ADD	ADD	ADD	
013079	ADD	ADD	ADD	ADD	ADD	
013080	ADD	ADD	ADD	ADD	ADD	
013081	ADD	ADD	ADD	ADD	ADD	
013082	ADD	ADD	ADD	ADD	ADD	
013083	ADD	ADD	ADD	ADD	ADD	
013084	ADD	ADD	ADD	ADD	ADD	
013085	ADD	ADD	ADD	ADD	ADD	
013086	ADD	ADD	ADD	ADD	ADD	
013087	ADD	ADD	ADD	ADD	ADD	
013088	ADD	ADD	ADD	ADD	ADD	
013089	ADD	ADD	ADD	ADD	ADD	
013090	ADD	ADD	ADD	ADD	ADD	
013091	ADD	ADD	ADD	ADD	ADD	
013092	ADD	ADD	ADD	ADD	ADD	
013093	ADD	ADD	ADD	ADD	ADD	
013094	ADD	ADD	ADD	ADD	ADD	
013095	ADD	ADD	ADD	ADD	ADD	
013096	ADD	ADD	ADD	ADD	ADD	
013097	ADD	ADD	ADD	ADD	ADD	
013098	ADD	ADD	ADD	ADD	ADD	
013099	ADD	ADD	ADD	ADD	ADD	
013100	ADD	ADD	ADD	ADD	ADD	
013101	ADD	ADD	ADD	ADD	ADD	
013102	ADD	ADD	ADD	ADD	ADD	
013103	ADD	ADD	ADD	ADD	ADD	
013104	ADD	ADD	ADD	ADD	ADD	
013105	ADD	ADD	ADD	ADD	ADD	
013106	ADD	ADD	ADD	ADD	ADD	
013107	ADD	ADD	ADD	ADD	ADD	
013108	ADD	ADD	ADD	ADD	ADD	
013109	ADD	ADD	ADD	ADD	ADD	
013110	ADD	ADD	ADD	ADD	ADD	
013111	ADD	ADD	ADD	ADD	ADD	
013112	ADD	ADD	ADD	ADD	ADD	
013113	ADD	ADD	ADD	ADD	ADD	
013114	ADD	ADD	ADD	ADD	ADD	
013115	ADD	ADD	ADD	ADD	ADD	
013116	ADD	ADD	ADD	ADD	ADD	
013117	ADD	ADD	ADD	ADD	ADD	
013118	ADD	ADD	ADD	ADD	ADD	
013119	ADD	ADD	ADD	ADD	ADD	
013120	ADD	ADD	ADD	ADD	ADD	
013121	ADD	ADD	ADD	ADD	ADD	
013122	ADD	ADD	ADD	ADD	ADD	

INCB	B2	RAY	A2	TST
000015	1033			
10324	1034			
000001	1034			
000000	1034			
000000	1035			
000000	1035			
000000	1035			

15-1-1 FILTER

INCB	B2	RAY	A2	TST
000015	1033			
10324	1034			
000001	1034			
000000	1034			
000000	1035			
000000	1035			
000000	1035			

013206	000056	1054	INCA	A2	RAY	P2	TST		
013207	100040	1055							
013210	000001	1055							
013211	000000	1055	MOVA	A1	Y	MAR	JN	FLD 0+2	NEW OUTPUT
013212	000042	1056							
013213	010040	1056							
013214	001060	1056	CSD	FD	R	B2	FLC 4	REFCT POINTER	
013215	117050	1057							
013216	000000	1057							
013217	000004	1057	MOVD	FD	Y	MAP	FLD PTR5		
013220	037051	1060							
013221	000000	1060							
013222	000057	1060	POVA	A2	Y	MAR		STORE POINTER	
013223	000042	1061							
013224	000000	1061							
013225	000000	1061	MOVA	A1	SD	P0		INPUT TO NEXT FILTER	
013226	000040	1062							
013227	010000	1062							
013230	000000	1062							
013231	037051	1063	MOVD	FD	Y	MAR	FLD PTR4	FIL4	
013232	000000	1063							
013233	000066	1063							
013234	037051	1064	POVD	FD	Y	MAR	FLC OUT4		
013235	000000	1064							
013236	000065	1064							
013237	037040	1065	POVC	MOR	R	B2			
013240	000000	1065							
013241	000000	1065							
013242	000051	1066	ADDDA	A2	FD	Y	MAR	FLU S4+3	
013243	000000	1066							
013244	000072	1066	MOVD	MOR	R	R1			
013245	000040	1067							
013246	000000	1067							
013247	000000	1067	SUBAL	A1	MOR	P	B3	SUB OIDEY DATUM	
013250	110000	1070							
013251	010000	1070							
013252	000000	1070	ADDAF	A0	R3	P		ADD NEW DATUM	
013253	001040	1071							
013254	000000	1071							
013255	000000	1071	MOVA	A0	Y	MAR		NEW DATUM TO STACK	
013256	000042	1072							
013257	000000	1072							
013260	000000	1072	MOVD	FD	Y	MAR	FLD OUT4		
013261	037051	1073							
013262	000000	1073							
013263	000065	1073							
013264	100040	1074	INCA	A2	RAY	P2	TST		
013265	000001	1074							
013266	000000	1074							
013267	000042	1075	MOVA	A1	Y	MAR	JN	FLU 0+2	NEW OUTPUT
013270	010040	1075							
013271	001077	1075							
013272	117050	1076	CSD	FD	R	R2	FLD 3		
013273	000000	1076							
013274	000003	1076	MOVD	FD	Y	MAR	FLD PTR4		
013275	037051	1077							
013276	000000	1077							

013277	000066	1077	MOVA	A2	Y	MAR	:STORE POINTER
013300	000042	1100					
013301	020000	1100					
013302	000000	1100	MOVA	A1	SD	B0	:INPUT TO NEXT FILTER
013303	030040	1101					
013304	010000	1101					
013305	000000	1101	MOVD	FD	Y	MAR	FID PTR3 :FIL3
013306	000051	1102					
013307	000000	1102					
013310	000074	1102	MOVD	FD	Y	MAR	FID OUT3
013311	030051	1103					
013312	000000	1103					
013313	000073	1103	MOVD	MOR	P	R2	
013314	000000	1104					
013315	000000	1104					
013316	000000	1104					
013317	000051	1105	ADDEA	A2	FD	Y	MAR FLD S3+2
013320	020000	1105					
013321	000077	1105	MOVD	MOR	R	P1	
013322	030040	1106					
013323	000000	1106					
013324	000000	1106	SLIPAC	A1	MOR	P	B1 :SUB OLDEST DATUM
013325	100040	1107					
013326	000000	1107	ADDAF	A0	B1	P	:ADD NEW DATUM
013327	000000	1107					
013330	000000	1110					
013331	000000	1110	MOVA	A0	Y	MAR	:NEW DATUM TO STACK
013332	000000	1110					
013333	000042	1111					
013334	000000	1111	MOVD	FD	Y	MAR	FID OUT3
013335	000000	1111					
013336	000051	1112					
013337	000000	1112	INCA	A2	RAY	B2	TST
013340	000073	1112					
013341	100040	1113					
013342	000001	1113	MOVA	A1	Y	MAR	JN FLD 2 :NEW OUTPUT
013343	000000	1113					
013344	000042	1114					
013345	000040	1114					
013346	000016	1114	CSF	FD	R	R2	FID 2
013347	100050	1115					
013348	000000	1115					
013351	000002	1115	MOVD	FD	Y	MAR	FID PTR3
013352	000051	1116					
013353	000000	1116					
013354	000074	1116					
013355	000042	1117	MOVA	A2	Y	MAR	:STORE POINTER
013356	020000	1117					
013357	000000	1117					

HELPMETARY PITCH DETECTORS

013360	030051	1120	PFAK	MOVD	FD	Y	MAR	FID SN0	:PUSH SLOPPS
013361	000000	1120							
013362	000001	1120							
013363	000051	1121	MOVD	FD	Y	MAR	FID SNM10		

[illegible]

Instruction	Op	Op2	Op3	Op4	Op5	Op6	Op7	Op8	Op9	Op10	Op11	Op12	Op13	Op14	Op15	Op16	Op17	Op18	Op19	Op20	Op21	Op22	Op23	Op24	Op25	Op26	Op27	Op28	Op29	Op30	Op31	Op32	Op33	Op34	Op35	Op36	Op37	Op38	Op39	Op40	Op41	Op42	Op43	Op44	Op45	Op46	Op47	Op48	Op49	Op50	Op51	Op52	Op53	Op54	Op55	Op56	Op57	Op58	Op59	Op60	Op61	Op62	Op63	Op64	Op65	Op66	Op67	Op68	Op69	Op70	Op71	Op72	Op73	Op74	Op75	Op76	Op77	Op78	Op79	Op80	Op81	Op82	Op83	Op84	Op85	Op86	Op87	Op88	Op89	Op90	Op91	Op92	Op93	Op94	Op95	Op96	Op97	Op98	Op99	Op100	Op101	Op102	Op103	Op104	Op105	Op106	Op107	Op108	Op109	Op110	Op111	Op112	Op113	Op114	Op115	Op116	Op117	Op118	Op119	Op120	Op121	Op122	Op123	Op124	Op125	Op126	Op127	Op128	Op129	Op130	Op131	Op132	Op133	Op134	Op135	Op136	Op137	Op138	Op139	Op140	Op141	Op142	Op143	Op144	Op145	Op146	Op147	Op148	Op149	Op150	Op151	Op152	Op153	Op154	Op155	Op156	Op157	Op158	Op159	Op160	Op161	Op162	Op163	Op164	Op165	Op166	Op167	Op168	Op169	Op170	Op171	Op172	Op173	Op174	Op175	Op176	Op177	Op178	Op179	Op180	Op181	Op182	Op183	Op184	Op185	Op186	Op187	Op188	Op189	Op190	Op191	Op192	Op193	Op194	Op195	Op196	Op197	Op198	Op199	Op200	Op201	Op202	Op203	Op204	Op205	Op206	Op207	Op208	Op209	Op210	Op211	Op212	Op213	Op214	Op215	Op216	Op217	Op218	Op219	Op220	Op221	Op222	Op223	Op224	Op225	Op226	Op227	Op228	Op229	Op230	Op231	Op232	Op233	Op234	Op235	Op236	Op237	Op238	Op239	Op240	Op241	Op242	Op243	Op244	Op245	Op246	Op247	Op248	Op249	Op250	Op251	Op252	Op253	Op254	Op255	Op256	Op257	Op258	Op259	Op260	Op261	Op262	Op263	Op264	Op265	Op266	Op267	Op268	Op269	Op270	Op271	Op272	Op273	Op274	Op275	Op276	Op277	Op278	Op279	Op280	Op281	Op282	Op283	Op284	Op285	Op286	Op287	Op288	Op289	Op290	Op291	Op292	Op293	Op294	Op295	Op296	Op297	Op298	Op299	Op300	Op301	Op302	Op303	Op304	Op305	Op306	Op307	Op308	Op309	Op310	Op311	Op312	Op313	Op314	Op315	Op316	Op317	Op318	Op319	Op320	Op321	Op322	Op323	Op324	Op325	Op326	Op327	Op328	Op329	Op330	Op331	Op332	Op333	Op334	Op335	Op336	Op337	Op338	Op339	Op340	Op341	Op342	Op343	Op344	Op345	Op346	Op347	Op348	Op349	Op350	Op351	Op352	Op353	Op354	Op355	Op356	Op357	Op358	Op359	Op360	Op361	Op362	Op363	Op364	Op365	Op366	Op367	Op368	Op369	Op370	Op371	Op372	Op373	Op374	Op375	Op376	Op377	Op378	Op379	Op380	Op381	Op382	Op383	Op384	Op385	Op386	Op387	Op388	Op389	Op390	Op391	Op392	Op393	Op394	Op395	Op396	Op397	Op398	Op399	Op400	Op401	Op402	Op403	Op404	Op405	Op406	Op407	Op408	Op409	Op410	Op411	Op412	Op413	Op414	Op415	Op416	Op417	Op418	Op419
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ADAPTABLE THRESHOLD OR BLANKING COUNT

INSTR	COND	FD	R	EO	FLD 50.
UPDATE	ADDDA	FD	A0	Y	PAR FLD CHAN+57.
	ADDDA	FD	A0	Y	PAR FLD CHAN+53.
	DECD	MOR	R	R1	IST
	INCD	MOR	Y	PER JN	FLD THD
	ADDDA	FD	A0	Y	PAR FLD CHAN+57.
	ADDDA	FD	A0	RAY B0	TST FLD 10.
	MOVA	A1	Y	PER JN	FLD UPDAT
	NOOP	JP	FLD NRG		UPDATE BLANKING COUNT

UPDATE THRESHOLD

TWO	ADDDA	FD	AN	Y	MAP	FLU CHAN+59.	IRFCAY FACTOR

013536	000073	1164	ADDDA	FD	AP	Y	MAP	FLD CHAN+5A.	:THRESHOLD
013537	000051	1165							
013540	000000	1165							
013541	000072	1165	MOVD	MOR	Y	MOR			
013542	000000	1165							
013543	000000	1165							
013544	000000	1166	MOVD	MOR	Y	MOR			
013545	000000	1167							
013546	000000	1167							
013547	000000	1167							
013550	000040	1170	NOOP	Y					
013551	000000	1170							
013552	000000	1170							
013553	000040	1171	NOOP	Y					
013554	000000	1171							
013555	000000	1171							
013556	000040	1172	NOOP	Y					
013557	000000	1172							
013560	000000	1172							
013561	000050	1173	ADDDA	FD	AP	RAY	R0	TST FLD In.	:NEXT BLOCK
013562	000001	1173							
013563	000012	1173							
013564	000032	1174	MOVD	UP	Y	MOR	JF	FLD UPDAT	:STORE THRESHOLD
013565	000040	1174							
013566	000054	1174							

COMPUTE ENERGY MEASURE

013567	000051	1175	NRG	MOVD	FD	Y	MAR	FLD OUT3
013570 <td>000000</td> <td>1175</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1175						
013571 <td>000073</td> <td>1175</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000073	1175						
013572 <td>000051</td> <td>1175</td> <td>MOVD</td> <td>FD</td> <td>Y</td> <td>MAR</td> <td>FLD HT</td> <td></td>	000051	1175	MOVD	FD	Y	MAR	FLD HT	
013573 <td>000000</td> <td>1176</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1176						
013574 <td>000051</td> <td>1175</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000051	1175						
013575 <td>000040</td> <td>1177</td> <td>MOVD</td> <td>MOR</td> <td>R</td> <td>P1</td> <td>:XN -> H1</td> <td></td>	000040	1177	MOVD	MOR	R	P1	:XN -> H1	
013576 <td>000000</td> <td>1177</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1177						
013577 <td>000000</td> <td>1177</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1177						
013600 <td>000051</td> <td>1200</td> <td>MOVD</td> <td>FD</td> <td>Y</td> <td>MAR</td> <td>FLD LO</td> <td></td>	000051	1200	MOVD	FD	Y	MAR	FLD LO	
013601 <td>000000</td> <td>1200</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1200						
013602 <td>000052</td> <td>1200</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000052	1200						
013603 <td>110040</td> <td>1201</td> <td>SUBAT</td> <td>A1</td> <td>MOR</td> <td>Y</td> <td>TST</td> <td>:XN-HT</td>	110040	1201	SUBAT	A1	MOR	Y	TST	:XN-HT
013604 <td>010001</td> <td>1201</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	010001	1201						
013605 <td>000000</td> <td>1201</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1201						
013606 <td>110040</td> <td>1202</td> <td>SUBAT</td> <td>A1</td> <td>MOR</td> <td>Y</td> <td>TST</td> <td>JN FLD +.3</td>	110040	1202	SUBAT	A1	MOR	Y	TST	JN FLD +.3
013607 <td>000041</td> <td>1202</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000041	1202						
013610 <td>000051</td> <td>1202</td> <td>MOVD</td> <td>FD</td> <td>Y</td> <td>MAR</td> <td>FLD HT</td> <td></td>	000051	1202	MOVD	FD	Y	MAR	FLD HT	
013611 <td>000000</td> <td>1203</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000000	1203						
013612 <td>000051</td> <td>1203</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000051	1203						
013613 <td>000051</td> <td>1203</td> <td>MOVA</td> <td>A1</td> <td>Y</td> <td>MAR</td> <td>JF</td> <td>FLD CKPH</td>	000051	1203	MOVA	A1	Y	MAR	JF	FLD CKPH
013614 <td>000042</td> <td>1204</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000042	1204						
013615 <td>010010</td> <td>1204</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	010010	1204						
013616 <td>000024</td> <td>1204</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000024	1204						
013617 <td>000040</td> <td>1205</td> <td>NOOP</td> <td>JPZ</td> <td>FLD CKPH</td> <td></td> <td></td> <td></td>	000040	1205	NOOP	JPZ	FLD CKPH			
013620 <td>000020</td> <td>1205</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000020	1205						
013621 <td>000024</td> <td>1205</td> <td>MOVA</td> <td>A1</td> <td>Y</td> <td>MAR</td> <td>JF</td> <td>FLD CKPH</td>	000024	1205	MOVA	A1	Y	MAR	JF	FLD CKPH
013622 <td>000042</td> <td>1205</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	000042	1205						

ADDRESS	OPERATION	FD	R3	FIL	30.
013770	MOV				
013771	MOV				
013772	MOV				
013773	MOV				
013774	MOV				
013775	MOV				
013776	MOV				
013777	MOV				
014000	MOV				
014001	MOV				
014002	MOV				
014003	MOV				
014004	MOV				
014005	MOV				
014006	MOV				
014007	MOV				
014010	MOV				
014011	MOV				
014012	MOV				
014013	MOV				
014014	MOV				

COMPUTE DECAY FACTOR

ADDRESS	OPERATION	FD	R3	FIL	30.
014015	MOV				
014016	MOV				
014017	MOV				
014020	MOV				
014021	MOV				
014022	MOV				
014023	MOV				
014024	MOV				
014025	MOV				
014026	MOV				
014027	MOV				
014030	MOV				
014031	MOV				
014032	MOV				
014033	MOV				
014034	MOV				
014035	MOV				
014036	MOV				
014037	MOV				
014040	MOV				
014041	MOV				
014042	MOV				
014043	MOV				
014044	MOV				

COMPUTE BLANKING INTERVAL

ADDRESS	OPERATION	FD	R3	FIL	30.
014045	MOV				
014046	MOV				
014047	MOV				
014050	MOV				

014051	000000	1270					
014052	011002	1270					
014053	037143	1271					
014054	000000	1271					
014055	000000	1271					
014056	037146	1272					
014057	000000	1272					
014060	000000	1272					
014061	000000	1273					
014062	000000	1273					
014063	000007	1273					
014064	000000	1274					
014065	000000	1274					
014066	000012	1274					
014067	000040	1275					
014070	000000	1275					
014071	000000	1275					
014072	000040	1276					
014073	000000	1276					
014074	000000	1276					
014075	037132	1277					
014076	000012	1277					
014077	000000	1277					

MOVD	MOR	Y	MCN				
MOVD	MOR	Y	YDR				
ADDCA	FD	A0	Y	MAF	FLU 7		
ADDCA	FD	A0	P	B0	FLU 10.		NEXT BLOCK
NOOP	Y						
NOOP	Y						
POVD	UP	Y	M2P	SFF			PAV*.4.

PAGE

PARAMETER INTERPOLATION ROUTINE

ADDRESS	INSTR	MOVD	FD	Y	MAP	FLD ICNT'	ENTRY FOR TURF
014100	037151						
014101	000000						
014102	000474						
014103	037152	MOVD	FD	Y	MAP	FLD INT-1	
014104	000000						
014105	000047	MOVD	FD	R	P1	FLD P-1	
014106	037150						
014107	000100						
014110	000013						
014111	037151	PTNTR	MOVD	FD	Y	MAP	FLD M11'
014112	000000						
014113	000473						
014114	000151	ADDDA	A1	FD	Y	MAP	FLD DF+1
014115	000000						
014116	000137	MOVL	MOR	Y	PCD		
014117	037143						
014120	000000						
014121	000000	MOVD	MOR	Y	MAP		
014122	037146						
014123	000000						
014124	000000	NOOP	Y				
014125	000140						
014126	000000						
014127	000000	NOOP	Y				
014130	000140						
014131	000000						
014132	000000						
014133	000140	NOOP	Y				
014134	000000						
014135	000000						
014136	000151	ADDDA	FD	A1	Y	MAP	FLD DF
014137	000000						
014140	000136						
014141	037130	MOVC	UP	SU	PC		
014142	000000						
014143	000000						
014144	037146	INTLUP	MOVD	MOR	Y	MAP	
014145	000000						
014146	000000						
014147	000151	ADDDA	FD	A1	Y	MAP	FLD NF+1
014150	000000						
014151	000122						
014152	000151	ADDDA	FD	A1	Y	MAP	FLD IF+1
014153	000000						
014154	000154						
014155	000142	ADDDA	MOR	A0	P	MAP	B3
014156	000000						
014157	000000						
014160	000140	DECA	A1	RAY	P1	TST	
014161	000101						
014162	000000						
014163	000151	ADDDA	FD	A1	Y	MAP	FLD DF
014164	000000						

PCN	DECD	MOR	R	MAP	B1	TSI	:DEFERMENT PCNT
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ACOUSTIC TUBE SYNTHESIZER

PCN	DECD	MOR	R	MAP	B1	TSI	:DEFERMENT PCNT
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014333	000155	1263	MOVD	FD	Y	PAR	FID EYCI1	
014334	017151	1264						
014335	000000	1264						
014336	000000	1264	MOV	R	P2			
014337	017140	1265						
014340	000000	1265						
014341	000000	1265	MOV	P	P3			
014342	017140	1266						
014343	000000	1265						
014344	000000	1265						
014345	114130	1267	SUBR	A3	UP	P	P2	
014346	030200	1267						
014347	000000	1267	ADDDA	FD	A1	Y	MAP	FLD RPL+1
014350	000151	1270						
014351	010000	1270						
014352	000171	1270	MOVA	A2	Y	MCD		:IK<(P-2)
014353	034043	1271						
014354	020000	1271						
014355	000000	1271	MOV	MOR	Y	MPR		:IK<(P-2)*BRL(P-2)
014356	027146	1272						
014357	000000	1272						
014360	000000	1272	MOV	FD	Y	MCR	FLD M11	
014361	037151	1273						
014362	000000	1273						
014363	000073	1273						
014364	037150	1274	MOV	FD	P	PN	FLD	(200000/r+1)/2+1
014365	000000	1274						
014366	000220	1274	ADDDA	MOR	PN	Y	MRR	TS1 :MU+CLO+1
014367	045142	1275						
014370	000001	1275	NOOP	JN	FLD	++2		
014371	000000	1275						
014372	000110	1276						
014373	000040	1276						
014374	001400	1276						
014375	042142	1277	CLP	Y	MPR			
014376	000000	1277						
014377	000000	1277						
014400	000140	1400						
014401	000000	1400						
014402	000000	1400						
014403	114336	1401	SUBR	A3	UP	P	B3	MPR :UPDATE EXCIT
014404	030200	1401						
014405	000000	1401						
014406	014340	1402	DECA	A1	PAY	R1	TST	
014407	010101	1402						
014410	000000	1402						
014411	000140	1403	NOOP	Y				
014412	000000	1403						
014413	000000	1403	ADDDA	FD	A1	Y	MAP	FLD IK<+1
014414	000151	1404						
014415	010000	1404						
014416	000151	1405	ADDDA	FD	A1	Y	MAP	FLD BRL+1
014417	000000	1405						
014420	010000	1405						
014421	000171	1405	MOV	MOR	Y	MCD		:NEW K
014422	037143	1406						
014423	000000	1406						

014515 100000 1431

PAGE

015767	000140	1775
015770	000010	1775
015771	000771	1775
015772	000140	1776
015773	000010	1776
015774	000574	1776
015775	000140	1777
015776	000010	1777
015777	000526	1777

MP	1775		
NOOP	JP	FLD AD,DA	INTERRUPT VECT

NOOP	JP	FLD SPC
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NOOP	JP	FLD PSC
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PAGE

			MP	0	
			RAM	0	
020000	000000	0000	EXCIT	0	
020001	000015	0001	RRUFH	RLOCK	P+1
020016	000015	0016	RRUFI	RLOCK	P+1
020033	000015	0033	YRUF	RLOCK	P+1
020050	000015	0050	RS	RLOCK	P+1
020065	000014	0065	AS	RLOCK	P
020101	000000	0101	SCLEFAC	0	
020102	000000	0102	PITCH	0	PITCH, F, KS CONTIGUOUS
020103	000000	0103	E	0	
020104	000014	0104	KS	RLOCK	P
020120	000000	0120	NPITCH	0	
020121	000000	0121	NF	0	
020122	000014	0122	NKS	RLOCK	P
020136	000000	0136	DF	0	
020137	000014	0137	DKS	RLOCK	P
020153	000000	0153	IF	0	
020154	000014	0154	IKS	RLOCK	P
020170	000014	0170	RRL	RLOCK	P
020204	000000	0204	RNPIT	0	
020205	000015	0205	BYE	RLOCK	P+1
020222	000034	0222	ORUF	RLOCK	2*(P+2)
020256	000000	0256	OUT5	0	
020257	000000	0257	PTR5	0	
020260	000005	0260	S5	RLOCK	5
020265	000000	0265	OUT4	0	
020266	000000	0266	PTR4	0	
020267	000004	0267	S4	RLOCK	4
020273	000000	0273	OUT3	0	
020274	000000	0274	PTR3	0	
020275	000003	0275	S3	RLOCK	3
020300	000074	0300	CHAN	RLOCK	60.
020374	000044	0374	CTAB	RLOCK	36.

VARIABLES

020440	DVAL
020441	DAN
020442	MASK
020443	INTTS
020444	CTHI
020445	CTR
020446	INTCT
020447	OUTCT
020450	FRCTFG
020451	HI
020452	LO
020453	ACK
020454	INTSC
020455	PCO
020456	VARMASK
020457	CONCTP
020460	OWEDX
020461	CHT
020462	NR
020463	ICEN
020464	LOCNAV

020465	LOGCUD
020466	TWOIX
020467	DTAMP
020470	DIT
020471	DTAMP
020472	WAMP
020473	MII
020474	TCNT
020475	SPOUT
020476	SCIN
020477	OTR
020500	YMMI
020501	SN
020502	YMMI
020503	PCNT

PAGE

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021001	100000	1001			
021002	031463	1002			
021003	005056	1003	RUTC	.079556.	
021004	000010	1004	CHANT	200.	IPA
021005	000072	1005		250.	IPB
021006	000054	1006		300.	IPC
021007	000036	1007		350.	ISAMPLES SINCE LAST PEAK
			:	0	CURRENT MEASUREMENT
			:	0	PREVIOUS MEASUREMENT FOR MIM4
			:	0	PAV
			:	0	BLANKING COUNT
			:	0	CURRENT THRESHOLD
			:	0	DECAY FACTOR
021010	076025	1010	DECY	.979160.	
021011	076025	1011		.979160.	
021012	076075	1012		.982337.	
021013	077011	1013		.984674.	
021014	077104	1014		.986465.	
021015	077162	1015		.987881.	
021016	077230	1016		.989029.	
021017	077267	1017		.989978.	
021020	077321	1020		.990776.	
021021	777773	1021	BIAS	-5	
021022	777771	1022		-7	
021023	777766	1023		-10.	
021024	777764	1024		-12.	
021025	001055	1025	DRAD04	DET61	
021026	003075	1026		DLAR16	
021027	003075	1027		DLAR16	
021030	003013	1030		DLAR4	
021031	003013	1031		DLAR4	
021032	003042	1032		DLAR3	
021033	003042	1033		DLAR3	
021034	003042	1034		DLAR3	
021035	003042	1035		DLAR3	
021036	003055	1036		DLAR3	
021037	003055	1037		DLAR3	
021040	001055	1040	DRAD06	DET81	
021041	003075	1041		DLAR16	
021042	003075	1042		DLAR16	
021043	003034	1043		DLAR5	
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021045	003034	1045		DLAR5	
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021047	003034	1047		DLAR5	
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021054	003034	1054		DLAR5	

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021056	002177	1056		DLAR1 7
021057	002177	1057		DLAR1 7
021060	002576	1060		DLAR7
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021062	002576	1062		DLAR7
021063	002576	1063		DLAR7
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021066	002576	1066		DLAR7
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021070	002576	1070		DLAR7
021071	002576	1071		DLAR7
021072	777777	1072	NRIT24	1-NK924
021073	777771	1073		1-MPIT
021074	777774	1074		1-NEI
021075	777773	1075		1-NK024
021076	777773	1076		1-NK124
021077	777775	1077		1-NK224
021100	777775	1100		1-NK324
021101	777776	1101		1-NK424
021102	777776	1102		1-NK524
021103	777776	1103		1-NK624
021104	777776	1104		1-NK724
021105	777777	1105		1-NK824
021106	777774	1106	NRIT36	1-NK1136
021107	777771	1107		1-MPIT
021110	777774	1110		1-NEI
021111	777773	1111		1-NK036
021112	777773	1112		1-NK136
021113	777774	1113		1-NK236
021114	777774	1114		1-NK336
021115	777774	1115		1-NK436
021116	777774	1116		1-NK536
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021120	777774	1120		1-NK736
021121	777774	1121		1-NK836
021122	777774	1122		1-NK936
021123	777774	1123		1-NK1036
021124	777772	1124	NRIT48	1-NK1148
021125	777771	1125		1-MPIT
021126	777774	1126		1-NEI
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021134	777772	1134		1-NK548
021135	777772	1135		1-NK648
021136	777772	1136		1-NK748
021137	777772	1137		1-NK848
021140	777772	1140		1-NK948
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021161	000077	1161		(1^Nf 136)-1
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021163	000037	1163		(1^Nf 336)-1
021164	000037	1164		(1^Nf 436)-1
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11/2 OF 158 POINT HAMMING WINDOW

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022733	028033	2733	.379753.
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022750	041005	2750	.519710.
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022753	043075	2753	.548754.
022754	043661	2754	.558154.
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022763	047534	2763	.620602.
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022772	053146	2772	.674599.
022773	053525	2773	.682309.
022774	054101	2774	.689485.
022775	054447	2775	.696528.

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023136	723005	3136	-.702985.
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023261	022421	3261	.289605.
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023263	030531	3263	.385537.
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023271	047744	3271	.624156.
023272	051774	3272	.656132.
023273	052714	3273	.685914.

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023274	727007	3274	.640421.
023275	722112	3275	.571590.
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023311	044466	3311	.571590.

LAR4

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023315	725132	3315		-.534389.
023316	743025	3316		-.452514.
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023321	765536	3321		-.161200.
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023324	012242	3324		.161200.
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023326	027135	3326		.362224.
023327	034753	3327		.452514.
023330	042146	3330		.534390.
023331	046075	3331		.607331.
023332	052754	3332		.671294.

023333	701137	3333	LAR3	-.477592.
023334	752526	3334		-.333333.
023335	765012	3335		-.171573.
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023340	025252	3340		.333333.
023341	036041	3341		.477592.
023342	735153	3342	DI AR3	-.541661.
023343	745707	3343		-.408006.
023344	757066	3344		-.254231.
023345	772160	3345		-.086427.
023346	003020	3346		.086427.
023347	020112	3347		.254230.
023350	032071	3350		.408006.
023351	042525	3351		.541661.

023352	752526	3352	LAR2	-.333333.
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023354	025252	3354		.333333.
023355	741137	3355	DI AR2	-.477592.
023356	765012	3356		-.171573.
023357	012766	3357		.171573.
023360	036041	3360		.477592.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This appendix to Lincoln Laboratory Technical Note 1976-37 provides all of the detailed drawings, layouts and cabling information to construct an identical vocoder to the one described in the technical note. The additional comments may clear up any additional questions concerning this appendix.			

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